Addendum No. 2

Issue Date: 22 May 2017
To: Bidding Contractors - Plan Holders
Project: Blue Ridge (Crozet) Tunnel Rehabilitation and Trail Project
Nelson County Board of Supervisors

The following items are being issued here for clarification, addition or deletion and have been incorporated into the Construction Documents and Project Manual, and shall be included as part of the bid documents. All Contractors shall acknowledge this **Addendum No. 2** in the Bid Form. Failure of acknowledgment may result in rejection of your bid. All Bidders shall be responsible for seeing that their subcontractors are properly apprised of the contents of this addendum.

BID DATE AND TIME:

1. The sign in sheet from the pre-bid meeting held on Friday May 12th is included with Addenda 2.
2. At this time, the bid opening remains May 31st at 2.00 PM.

CLARIFICATIONS / CONTRACTOR QUESTIONS:

1. Q: The unit of measurement for the aggregate base material is in cubic yards. Can the units be revised to reflect the number of tons? *A: Section 607.12 Unit Costs and Measures provides for the acceptable units for measurement. The quantity reflected in the bid form is based upon the area x thickness of the material. Please note that the volume is measured as "in-place and does not account for any volumetric loss due to compaction. The conversion from cubic yards to tons is based upon the unit weight of the material. For example, assuming a unit weight of 130 lbs/ft^3, which may be considered normal for VDOT 21B material, the conversion to tons would be 1 CY x (27 ft^3 / yd^3) x (130 lbs/ft^3) x (1 ton/2000 lbs). Thus, 1 CY of VDOT 21B is approximately 1.76 tons.*
2. Q: How will the tunnel be ventilated during construction? What is the requirement? *A: Contractor shall comply with all local, state, and federal laws and regulations, including OSHA and MSHA as applicable.*
3. Q: What is the project duration? *A: The project must be substantially complete on or before October 1st, 2018.*
4. Q: How quickly will a Notice to Proceed be issued? *A: Nelson County anticipates the contract will be awarded within 60 calendar days after receipt of bids. The notice to proceed shall be issued within 15 business days after execution of the contract.*
5. Q: What is the project budget? *A: The project budget is limited to the grant money available through VDOT for the project. The project budget includes contingencies, construction engineering and project construction.*
6. Q: How will Phase 2 and 3 be awarded? *A: The County intends to award the contract for phases 2 and 3 as a single contract and project. Bids will be awarded based on the total bid. If a low bid within available funding is not received, Nelson County may choose to reject all bids, per §2.2-4319 of the Code, and re-issue a revised project.*
7. Q: Can the County provide another date for a site walk thru? *A: Please contact the Nelson County Administrator's office directly at 434.263.7000.*

Woolpert.
11301 Carmel Commons Boulevard, Suite 300
Charlotte, NC 28226
704.525.6284

8. Q: Is a construction SWPPP required? What are the anticipated Construction Start Date for this project and the required Contract Completion Date? *A SWPPP will be required. VDOT projects require Form C-45 (Contractor Certification Statement) to be signed and returned with performance and payment bonds. See item 4 response for dates.*
9. Q: The Plan and Profile drawings for the Phase 2 trail through the tunnel (sheets C303 to C307) show the proposed finished grade of the trail to be within very close proximity to the existing invert grade of the tunnel. The "Typical Tunnel Section (Phase 2)" detail shown on sheet C802 shows the trail base material (No. 218 base) bearing directly on the rock invert of the tunnel. Based upon Jacob's 2010 Inspection report the tunnel invert has an existing roadbed in the east and west portions of the tunnel but the roadbed was removed between the bulkheads (reference paragraph 3 of section 3.1).
    a. Is it the intent of the contract documents to have the contractor remove the existing roadbed down to sound rock and install the new trail base material directly on the rock (as shown in detail)? *A: Site reconnaissance suggests that portions of the existing roadbed are suitable for the intended purposes and could remain, dependent upon confirmation by the geo-technical engineer and suitability following construction.*
    b. Is the depth of the existing roadbed (down to rock) known? Can a pay item for this work (Tunnel Subgrade Excavation) be created for phase 2 (if needed – no item exists for this work currently)? *A: The depth is not known. Minor grading of the area of existing roadbed, if necessary, will be considered as ancillary and not a separate pay item.*
    c. Can the existing road bed material be utilized to temporarily regrade the tunnel if needed for temporary access during the tunnel rehab activities and to promote drainage throughout the tunnel (i.e. level out uneven bare rock invert between the bulkheads)? *A: Yes, the existing roadway bed material may be used as requested with the appropriate analysis and approval of the owner's geotechnical engineer.*
    d. Can the existing road bed material be left in place after tunnel rehab is complete and as the subgrade for the trail (i.e. in lieu of removing down to sound rock)? *A: Site reconnaissance suggests that portions of the existing roadbed are suitable for the intended purposes and should remain, dependent upon confirmation by the geo-technical engineer and suitability following construction.*
    e. Can the proposed grade for the trail be raised (if needed) to accommodate the actual subgrade conditions found during construction (i.e. this would reduce the Tunnel Subgrade Excavation and Localized Blasting (Item 20) required)? *A: Yes. Provided that a change in elevation for the primary trail does not impede flow along the tunnel wall.*

PROJECT MANUAL / SPECIFICATIONS:

1. The Civil Rights Requirements are attached hereto and incorporated into the project manual by reference. The form, which was provided at the pre-bid meeting, provides references and requirements for supplemental information.
2. VDOT Special Provision for Section 105.06 Subcontracting is attached hereto and applicable to this project.
3. The Addenda to Phase I of the Archeological Survey Report dated April 2012 as included in Section 9.2 of the project manual issued on April 24th included only the even pages. Section 9 is hereby been

re-issued in it's entirety with this Addenda to include both the Phase I report dated December 2010 and the Phase I report dated April 2012.

4. The Bid Proposal Form has been amended and is attached hereto. The form, entitled *Bid Proposal From as Issued with Addenda 2*, corrects inconsistencies with the item numbers and shall supplant the form found in the Project Manual issued on April 24th, 2017.

SUBSTITUTION APPROVALS:

1. None requested at this time.

DRAWINGS:

1. No revisions at this time.

MISCELLANEOUS:

1. None noted at this time.

End of Addendum #2

Woolpert, Inc.
11301 Carmel Commons Boulevard, Suite 300
Charlotte, NC 28226
704.525.6284

Mandatory Pre-Bid Sign-In Sheet
12-May-17
Invitation for Bid
IFB #2017-NCBRTPH23
Blue Ridge (Crozet) Tunnel Rehabilitation & Trail Project - Phase 2 & 3

Name (Printed)	Organization	Telephone Number	E-mail Address
GREG HARNISH	WOOLPERT	704.526.3052	GREG.HARNISH@WOOLPERT.COM
EILEEN PROSSER	KANAWHA STONE	304-514-1419	estimating@kanawhastone.com
E. Glen Gentry	LINCO INC	540-949-0370	Lincoinc@comcast.net
Daniel Runion	Burleigh Const.	434-993-2214	drunione burleighconstruction.com
John Gooch	FCE, Inc.	434-244-0250	estimating@fce-digs.com
Ricky Gibson	FCE, Inc.	434-244-0250	estimating@fce-digs.com
David Stavitski	Handley Excavation and Declomation	434-806-8895	Handleyexcavating@yahoo.com
Eric Seib	Merco Inc.	908-730-8622	eseib@mercoinc.com
Neal Vyar	Mid-State Constr	434-660-1295 ~~239-9900~~	NVyar@AOL.com
David Thompson	NC	434-263-7080	dthompson@nelsoncounty.org
Paul Trustow	NC		
Jim Allen	NC		
John Becker	Coastal Gunite	252-305-1518	JohnB@coastalgunite.com
DAVID A. HARNER	HC+M Inc	434.978.1000	dharner@hcmgc.com
Candy McGarry	NC	434-263-7002	cmcgarry@nelsoncounty.org
Debbie McCann	NC	434-263-7136	dmccann@nelsoncounty.org

Mandatory Pre-Bid Sign-In Sheet
12-May-17
Invitation for Bid
IFB #2017-NCBRTPH23
Blue Ridge (Crozet) Tunnel Rehabilitation & Trail Project - Phase 2 & 3

Name (Printed)	Organization	Telephone Number	E-mail Address
Phyllis Bruce	VDOT	434-856-8169	phyllis.bruce@vdot.virginia.gov
Jeffery Howard	VDOT	434-907-0407	jeffery.howard@vdot.virginia.gov
WAYNE NOLDE	VDOT	540-332-9047	WAYNE.NOLDE@VDOT.VIRGINIA.GOV

Civil Rights Requirement for Pre-Bid Meeting - Mandatory
Project: EN02-062-142,P101,C501 – UPC 63574
Blue Ridge Tunnel Rehabilitation - Phase 2 & 3
Date/Time: Friday, May 12, 2017 – 1:00 p.m.

Form C-111 – Minimum DBE Requirements must be completed and submitted with bid or received no later than 10:00 a.m. the next business day after the time stated in the bid proposal for the receipt of bids. All firms bidding on the project will have to submit form C-111 by 10:00 a.m. the next business day if not submitted with bid.

At time of bid, if the bidder knowingly cannot meet or exceed the required DBE contract goal, it shall submit Form C-111 exhibiting the DBE participation it commits to attain as a part of its bid documents along with Form C-49, DBE Good Faith Efforts Documentation or within two (2) business days after the bid opening or when requested by VDOT.

Form C-112 – Certification of Binding Agreement must be completed and submitted with bid or if determined the lowest responsive and responsible bidder within three (3) business days after bids are received. DBE's bidding as prime contractors are not required to submit Form C-112 unless they are utilizing other certified DBE's as subcontractors.

Form C-48 – Subcontractor/Supplier Solicitation and Utilization Form – All bidders, including DBEs bidding as Prime Contractors, must complete and submit this form within ten (10) business days after the opening of bids or with bid.

Form C-49 – DBE Good Faith Efforts Documentation –This information must be submitted within 2 days after bid opening if your bid does not meet the project DBE requirement or when requested by VDOT if DBE requirement is not met. **VDOT is requesting Form C-49 be submitted with bid if bidder cannot meet required contract DBE goal.**

DBE Requirement: **9%**

The only DBE firms eligible to perform work on federal-aid contracts for DBE contract goal credit are firms certified as Disadvantaged Business Enterprises (DBE) by the Department of Small Business and Supplier Diversity (SBSD). DBE firms must be certified in the specific work listed for DBE contract goal credit. A directory listing of certified DBE firms can be obtained from the SBSD website http://www.sbsd.virginia.gov

Please feel free to contact Phyllis A. Brice at 434-856-8169 or Renate Otey at 434-856-8170 for information concerning Civil Rights Requirements with this project.

This project could be reviewed for EEO Contract Compliance and will be reviewed for DBE Compliance.

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
SECTION 105.06 SUBCONTRACTING
(FEDERAL FUNDED PROJECTS)

February 9, 2017

Section 105.06 - Subcontracting of the Specifications is amended to include the following:

d) According to Commonwealth of Virginia Executive Order 20, the Contractor is encouraged to seek out and consider Small, Women-owned, and Minority-owned (SWaM) businesses certified by the Department of Small Business and Supplier Diversity (DSBSD) as potential subcontractors and vendors. Further, the Contractor shall furnish and require each subcontractor (first-tier) to furnish information relative to subcontractor and vendor involvement on the project.

For purposes of this provision, the term "vendor" is defined as any consultant, manufacturer, supplier or hauler performing work or furnishing material, supplies or services for the contract. The Contractor and, or subcontractor (first-tier) must insert this provision in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). The applicable requirements of this provision are incorporated by reference for work done by vendors under any purchase order, rental agreement or agreement for other services for the contract. The Contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or vendor.

The submission of a bid will be considered conclusive evidence that the Contractor agrees to assume these contractual obligations and to bind subcontractors contractually to the same at the Contractor's expense.

When an approved Form C-31 "Subletting Request" is required according to IIM-CD-2013-06.01, the Contractor shall indicate on the Subletting Request if a subcontractor is a certified DBE or SWAM business.

The Contractor shall report all DBE, SWAM, and Non SWAM vendor payments quarterly to the District Civil Rights Office. The Contractor shall provide the information in a format consistent with Form C-63, Vendor Payment Compliance Report, subject to the approval of the Engineer.

DBE Participation and reporting shall be in accordance with the Special Provision for Section 107.15 (Use of Disadvantaged Business Enterprises).

If the Contractor fails to provide the required information, the Department may delay final payment according to Specification Section 109.10.

SECTION 9

PERMITS AND ENVIRONMENTAL COMMITMENTS

Blue Ridge Crozet Tunnel Little Brown Bat and Tri-colored Bat Plan

I. Introduction

In 2016, the Virginia Department of Game and Inland Fisheries (VDGIF) amended the Virginia List of Endangered and Threatened Species (4VAC15-20-130) to add two species of bats (little brown and tri-colored bats) as endangered. This listing went into effect on April 1, 2016. On February 16, 2016, VDGIF issued conservation guidance, which identifies measures to avoid and minimize take of these species. As part of the listing regulation, VDGIF identified three conditions where incidental take of the listed species is allowed. One condition is the development of a plan that identifies potential incidental take, defines actions to avoid, minimize, and mitigate take, and keeps incidental take at a minimum. Nelson County has developed this plan in conjunction with VDGIF to address this requirement for the Blue Ridge Crozet Tunnel Rehabilitation and Trail Construction project. No other plans are required to be developed if activities fall within the described actions below.

II. Project Description

The Blue Ridge Crozet Tunnel Rehabilitation and Trail Construction project is comprised of three phases. Phase 1 of the project included the assessment and project design. Phase 2 includes the repair, rehabilitation and construction efforts associated with the Crozet Tunnel as outlined in the Tunnel Inspection Report prepared by Jacobs Associates dated November 30, 2010. Phase 3 includes the western trail, western trailhead, and surfacing of the eastern trail. This work includes the following project elements: clearing and grubbing, installation of storm water pipe, temporary silt fencing, inlet and outlet protection, regular and borrow excavation, installation of aggregate and asphalt concrete, fencing, construction signs, mobilization, construction surveying, installation of landscape, and signage. Construction within the tunnel will take approximately 6 months with the project duration between 18 to 24 months.

III. Potential Issues and Conflicts

1. Tree Clearing: Little brown and tri-colored are known to use trees as maternity roosts during the summer months. While it has been documented that approximately 98% of little brown bats and 96% of tri-colored bats have been lost to white-nose syndrome, there is a small chance that an undocumented colony may occur at the project.
2. Tunnel Construction: The Blue Ridge Tunnel will be converted from an old railroad tunnel to a trail system as part of a rails-to-trails project. The tunnel is a known winter hibernaculum for both the little brown and tri-colored bats. Due to the extensive construction effort to convert the old railroad tunnel into a usable trail system, work inside the tunnel will take approximately 6 months. This work has the potential to disrupt bats during the hibernation period.
3. Hibernacula Disturbance: Traffic during the hibernation period has the potential to disrupt bats during this period.

IV. Conservation Measures

1. Tree Clearing: Tree removal for the Blue Ridge Tunnel rails-to-trails project will be limited with the primary objective of clearing trees for the hiking path and those that may be hazardous to workers or users of the trail. Tree removal will encompass a small percentage of the trail system with the remaining forested areas maintained as suitable summer habitat for bats.
2. Tunnel Construction: Because of the extensive work to be conducted inside the tunnel that will overlap with the hibernation period, bats will be excluded from the tunnel until project completion. Netting will be draped over both entrances to the tunnel from September 1 through December 15 to keep bats from entering the tunnel during the fall swarm period.
3. Hibernacula Disturbance: Because of the potential to disrupt bats during the hibernation period, the project will implement the following procedures. No lighting will be installed in the tunnel in order to maintain the natural lighting conditions. Visitation is expected to be minimal due to typically inclement weather during this time of year. Kiosk at both entrances will include information on white-nose syndrome and the importance to not disturb bats during the hibernation period.

V. Expected Incidental Take

1. Tree Clearing: Due to the significant decline in both little brown bats and tri-colored bats caused by white-nose syndrome (WNS), the limited distribution of both species across the state due to declines associated with WNS, and minimal tree removal for construction and safety reasons, we expect incidental take to be minimal.
2. Tunnel Construction: Because bats will be excluded during the hibernation period, no take is anticipated.
3. Hibernacula Disturbance: Due to the minimal use expected during the hibernation period, we expect incidental take to be minimal.

VI. Incidental Take Protocol

- Exclusion will be performed by a Nuisance Wildlife Control Operator (NWCO) or individual that is certified in bat exclusion techniques through a program recognized by the VDGIF and is permitted by the VDGIF.
- Exclusion devices will be used to allow volant (capable of flight) individuals to escape.
- Individual animals incapable of sustaining themselves will be collected and transported to a willing and appropriate VDGIF-permitted wildlife rehabilitation facility.

Reporting

When take is observed, Nelson County will digitally report the following information to DGIF:

Date of the observation
Activity involved
Species
Number of bats taken

Reports will be submitted to:

Rick Reynolds
Verona Field Office
Department of Game and Inland Fisheries
Rick.Reynolds@dgif.virginia.gov
(540) 248-9360

A Phase I Archaeological Survey
of the
Blue Ridge Tunnel Greenway Project,
Nelson and Augusta Counties, Virginia.

VDHR File No. 2006-1101




Prepared for Woolpert, Inc.
Chesapeake, Virginia
and
Nelson County, Virginia

Prepared by Rivanna Archaeological Services, LLC
Charlottesville, Virginia

A Phase I Archaeological Survey
of the
Blue Ridge Tunnel Greenway Project,
Nelson and Augusta Counties, Virginia.

VDHR File No. 2006-1101

Prepared for Woolpert, Inc.
Chesapeake, Virginia
and
Nelson County, Virginia

Prepared by Rivanna Archaeological Services, LLC
Charlottesville, Virginia

December 2010

Abstract

Between September 1 and September 10, Rivanna Archaeological Services carried out a Phase I archaeological survey along portions of the proposed route of the Blue Ridge Tunnel Greenway, a 2.2 mile long pedestrian and bicycle corridor located through Rockfish Gap in the Blue Ridge Mountains and spanning Nelson and Augusta counties, Virginia. The work was carried out under an agreement with Woolpert, Inc. and Nelson County, Virginia. The tunnel rehabilitation and trail construction project has received transportation enhancement funding from the Virginia Department of Transportation.

The primary goal of the archaeological research was to identify and define potential archaeological sites within the footprint of the proposed Greenway corridor. A total of 100 shovel test pits were excavated at the eastern trailhead, western trailhead, and western trail. A single archaeological site approximately 600 x 150 feet in dimension, 44AU0829, was identified just northwest of the western portal of the Blue Ridge Tunnel. Domestic and industrial material culture from a mid-nineteenth century context was recovered from the site. Because of its potential association with the ca. 1826 Staunton and James River Turnpike Toll Gate keeper's residence and the ca. 1849-1859 construction of the Blue Ridge Tunnel, site 44AU0829 was determined to hold the potential to make important new contributions to existing historical understanding. It was recommended that additional archaeological investigations be conducted to more fully define site boundaries beyond the proposed trail corridor, to evaluate site-wide stratigraphic and cultural integrity, and to determine if the site is eligible for inclusion on the National Register of Historic Places.

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1 Introduction

This report presents the results of archaeological fieldwork and documentary research carried out by Rivanna Archaeological Services, LLC between September and October 2010 at the Blue Ridge Tunnel Greenway project in Nelson and Augusta counties, Virginia. The archaeological investigations were conducted to fulfill requirements imposed by Section 106 of the National Historic Preservation Act and was designed and implemented according to standards set forth by the U. S. Secretary of the Interior (48 FR 44716-44742) and the Virginia Department of Historic Resources. The purpose of the Phase I survey was to identify and to provide detailed information on the location and nature of archaeological resources potentially located within the Blue Ridge Tunnel Greenway project area.

The project was carried out under the general direction of Benjamin Ford who was responsible for the organization and direction of archaeological fieldwork, the archival research, laboratory processing of artifacts, and the preparation of this report. Nick Bon-Harper assisted in conducting fieldwork and made valuable contributions to the project's field report production components.

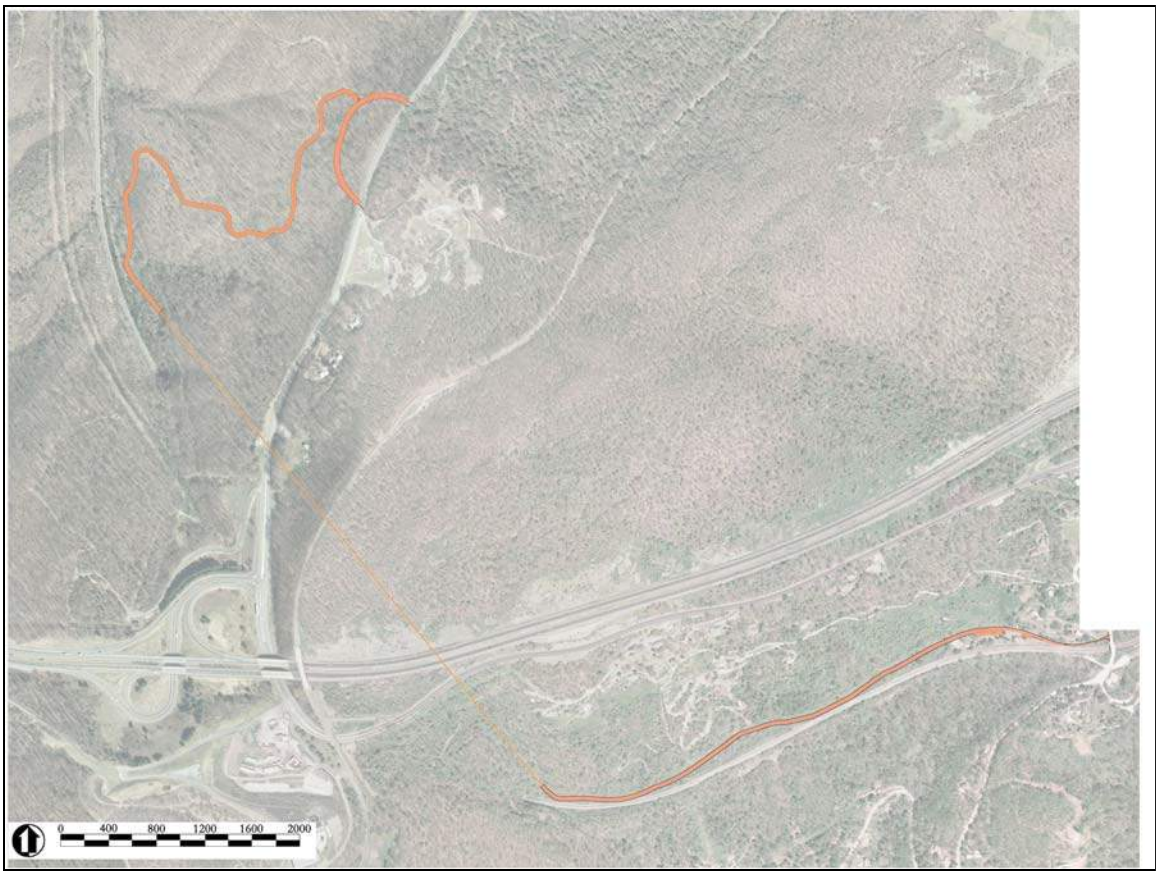

Figure #1: Aerial photograph showing Rockfish Gap in the Blue Ridge Mountains (at lower left) and the Blue Ridge Tunnel Greenway project area shaded in orange.

Description of Undertaking

In 2006 Nelson County, Virginia purchased the Blue Ridge Tunnel and an associated linear easement along the old railroad bed from CSXT. Nelson County proposes to rehabilitate the nearly mile long tunnel and construct a pedestrian and bicycle greenway between Afton in Nelson County and a western trailhead located on Route 250 in Augusta County. From the eastern trailhead to western trailheads the proposed Greenway will be 2.2 miles in length. On the eastern side the tunnel the greenway will link Afton, Virginia, following the course of the historic rail bed with the eastern portal of the tunnel. On the western side the tunnel the greenway will traverse a moderately wooded but steep slope from the western portal of the tunnel to a trailhead off of State Route 250 (See Figure #1).

2 Environmental Setting

The Blue Ridge Tunnel Greenway project area straddles Rockfish Gap in the Blue Ridge Mountains and encompasses the northern tip of Nelson County and the southeastern edge of Augusta County (See Figure #2). The project area lies on the eastern flank of the Appalachian Mountain Range along the eastern border of the northern Blue Ridge Province. The northern Blue Ridge province is characterized by steep slopes, narrow ridges, and broad mountains with elevations ranging between 1,500 – 4,200 feet asl.[1]

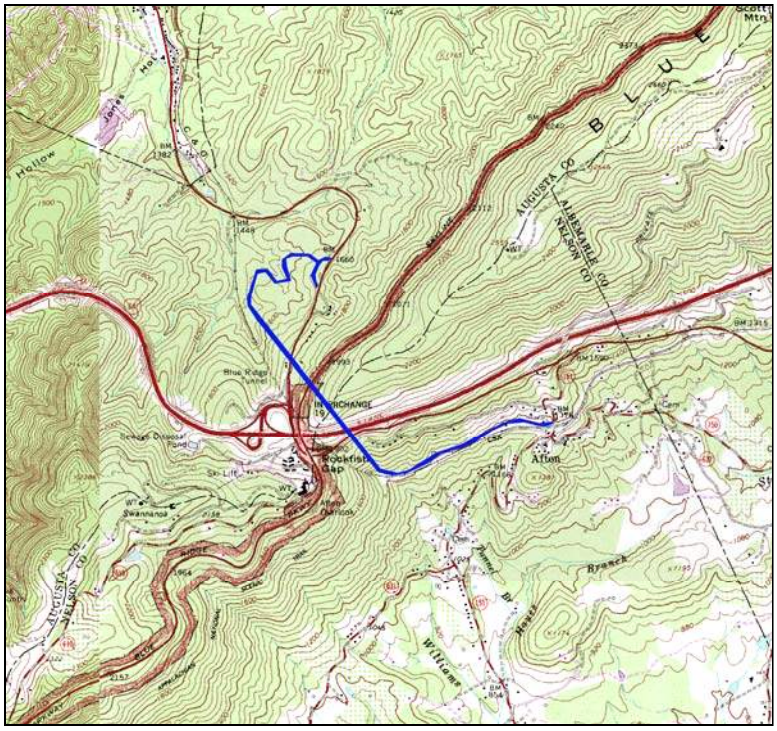

Figure #2: Detail, Waynesboro East and Waynesboro West U.S.G.S. Topographic maps, 7.5 Minute Series, showing major transportation corridors through Rockfish Gap and Blue Ridge Tunnel project area in blue.

Geologically speaking the northern Blue Ridge Province is an eroded anticline overturned to the west and composed of faulted and folded greenstone type metamorphic basalts. Because of the presence of faults and tectonic plate movement, at Rockfish Gap the Blue Ridge Province overlies the predominantly sedimentary Valley and Ridge Province located to the east.[2]

[1] C. Roberts and C. M. Bailey, *Physiographic Map of Virginia Counties*, 2000. Modified from the Virginia Division of Mineral Resources / U. S. Geological Survey Map of Mineral Producing Localities. Electronic resource: http://web.wm.edu/geology/virginia/provinces/pdf/va_counties_phys.pdf.

[2] Jacobs Associates, *Blue Ridget (Crozet) Tunnel Rehabilitation Tunnel Inspection Report*, 4-5. Draft report prepared for Woolpert, Inc. and Nelson County, Virginia. (Seattle: Jacobs Associates, 2009); Gary K. Rogers, PE, PhD., *Preliminary Stability Assessment for Claudius Crozet's Blue Ridge Tunnel*, 18. Prepared for The Whitesell Group and Nelson County, Virginia. (Lexington: Gary K. Rogers, 2006).

The eastern trailhead contained both sod, asphalt paving and intentionally planted stands of evergreen and deciduous trees. A line of scrub vegetation and young trees borders the project area on the north in this location. The western trail and western trailhead was covered in a young mixed hardwood forest, including cedar, maple and oak, with only a few isolated mature trees scattered throughout. A heavy undergrowth including scrub cedar and other small shrubs was noted at both the north and south ends of the western trail. Several springs and unnamed intermittent drainages cut through the project area.

Soils within the project area are quite diverse. From the eastern tunnel entrance to the eastern trailhead soils consist predominantly of the Myersville-Catoctin complex, very stony and containing approximately 35 – 55% slopes. From the western tunnel entrance to the western trailhead however five separate soil types are encountered including Cataska channery silt loam (15-45% slopes), Cataska very stony silt loam (25 – 50% slopes), Hartleton channery loam (15 – 45% slopes), Lew very stony silt loam (7-25% slopes), and Lew bouldery silt loam (10-45% slopes).[3]

[3] U. S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey. Electronic resource: http://websoilsurvey.nrcs.usda.gov/app/.

3 Project Area

The Blue Ridge Tunnel Greenway project area is a 2.2-mile (approximately 11,530 feet) linear trail, with trailheads on either end, that straddles Rockfish Gap in Nelson and Augusta counties in the Blue Ridge Mountains (See Figure #1). For purposes of facilitating the Phase I survey and locating and defining sites, the Greenway project area was broken down into 5 separate sections. The five sections are composed of the eastern trailhead (Section 1 – 966 feet), the eastern trail from its eastern terminus at the eastern trailhead to its western terminus at the eastern tunnel entrance (Section 2 – 3,360 feet), the Blue Ridge Tunnel proper (Section 3 – 4,270 feet), the western trail from its eastern terminus at the western tunnel entrance to its western terminus at the western trailhead (Section 4 – 3,900 feet), and the western trailhead (Section 5 – 1,150 feet).

Section 1 – Eastern Trailhead (966 feet)

Section 1, the proposed location for the eastern trailhead, follows the 700-foot long asphalt paved Afton Depot Lane beginning at State Route 6 (Afton Mountain Road) and terminating 966 feet west of it. Sod, shrubs and small trees line either side of the asphalt drive. The asphalt paved drive and eastern trailhead route in this location generally follow the course, and sit on top of, the historic Blue Ridge Railroad bed. The current CSX Railway tracks lie between 40 and 125 south of the route of the eastern trailhead (See Figure #3).

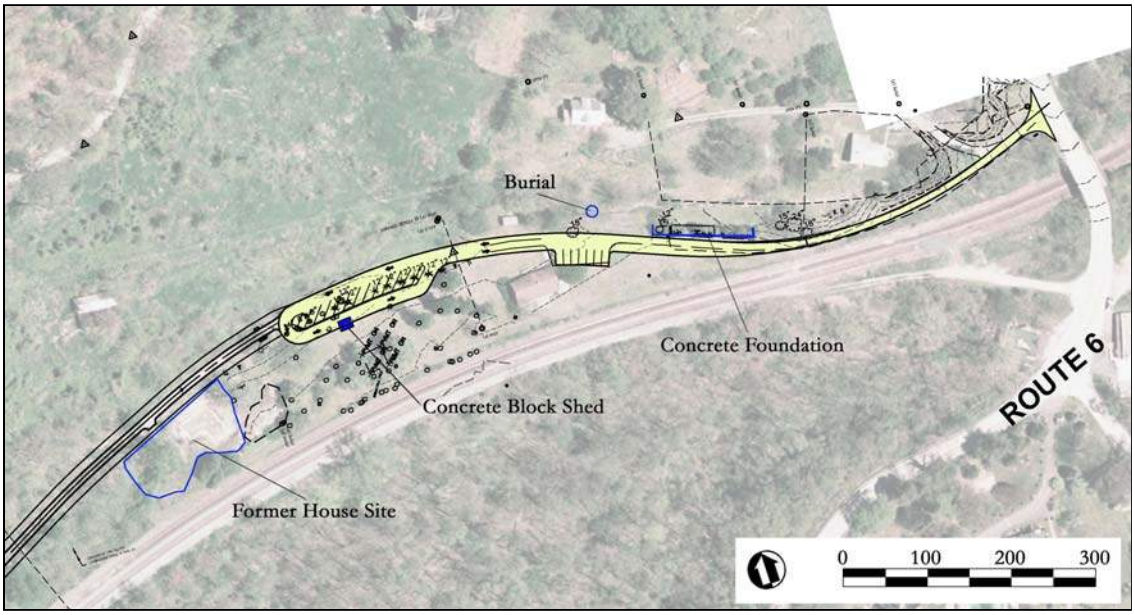

Figure #3: Section 1 – Eastern Trailhead, shaded in yellow, showing cultural features outlined in blue.

Six structures lie within or immediately adjacent to the proposed Blue Ridge Tunnel Greenway eastern trailhead, a residence and two outbuildings at 129 Afton Depot Lane, a

residence and outbuilding at 14 Afton Depot Lane, and a residence at 26 Afton Depot Lane. The three structures at 129 Afton Depot Lane (DHR 062-0394) are a ca. 1920 single story wood frame depot with a side-gabled asphalt shingled roof and rectangular footprint, renovated ca. 1990 and now used as an office, a ca. 1980 12 x 16 foot concrete block shed with pargeted sides with a corrugated metal gable roof and sliding wood door, and a small wood-sided pre-fab shed ca. late twentieth century. A small asphalt surfaced parking area containing 8 parking slots lies just east of the main office. The two structures at 14 Afton Depot Lane (DHR 002-5075-0396) are a ca. 1925 one and one half story Craftsman style wood frame bungalow with standing seam metal roof, and a small pre-fabricated shed ca. late twentieth century. The structure at 26 Afton Depot Lane (DHR 002-5075-0395) is a ca. 1920 one-story wood frame structure with a hipped asphalt shingle roof.

Three previously identified sites are also located adjacent to but not within the construction footprint of the eastern trailhead. A former nineteenth century residence, destroyed by fire in 2005, at 215 Afton Depot Lane was identified at the western end of Section 1; a 12 x 95 foot U-shaped concrete foundation, presumably the remains of the old Afton Depot, was identified in the center portion of Section 1; and a burial, possibly that of a small child or infant, was also identified in the center portion of Section 1 (See Figure #3). None of these three sites are proposed to be impacted in any way by the construction project.

As currently proposed, construction for Section 1 will consist of a widening of the existing road bed in targeted areas and construction of a new parking area containing eight vehicle slots. Approximately 320 feet from the intersection of Afton Depot Lane and Route 6, nearly 400 feet of the existing asphalt road bed is proposed be widened. Widening of the existing road bed will occur on the downslope or southern side of the road and consist of constructing a new gravel base and asphalt surfacing directly on top of the existing ground. Fill soils will be brought in to build grade where necessary. At the western end of the trailhead, approximately 720 – 910 feet west of the intersection of Afton Depot Lane and Route 6, a new parking area will also be constructed to provide additional parking spaces for visitors. The new parking area will measure approximately 50 feet in width by 190 feet in length. Construction of the new parking area will occur on the downslope or southern side of the road and consist of bringing in fill soils to build up grade where necessary to match the existing historic railroad bed corridor, and construction a new gravel base and asphalt surfacing.

Figure #4: DHR 062-0394, showing 1980 shed looking northeast towards eastern trailhead corridor and proposed new parking area.

In order to construct the parking at the western end of the trailhead, the demolition of a non-contributing structure at 129 Afton Depot Lane (DHR 062-0394), the ca. 1980 12 x 16 foot concrete block shed with pargeted sides with a corrugated metal gable roof and sliding wood door, is proposed (See Figure #4). In addition, several pine and other deciduous trees lining the south side of the existing road in this location are also proposed to be removed.

Section 2 – Eastern Trail (3,360 feet)

Section 2, the proposed location for the eastern trail, is characterized by an approximately 3,360 foot long soil and gravel bed following the course of the historic Blue Ridge Railroad bed, beginning at the western termination of the eastern trailhead and terminating at the eastern portal to the Blue Ridge Tunnel (See Figure #5). The route is a relatively clear 10-12 foot wide corridor. On either side of the eastern trail corridor are shrubs and extensive weedy growth and small trees. No extant structures were found to lie within 250 feet of the proposed corridor.

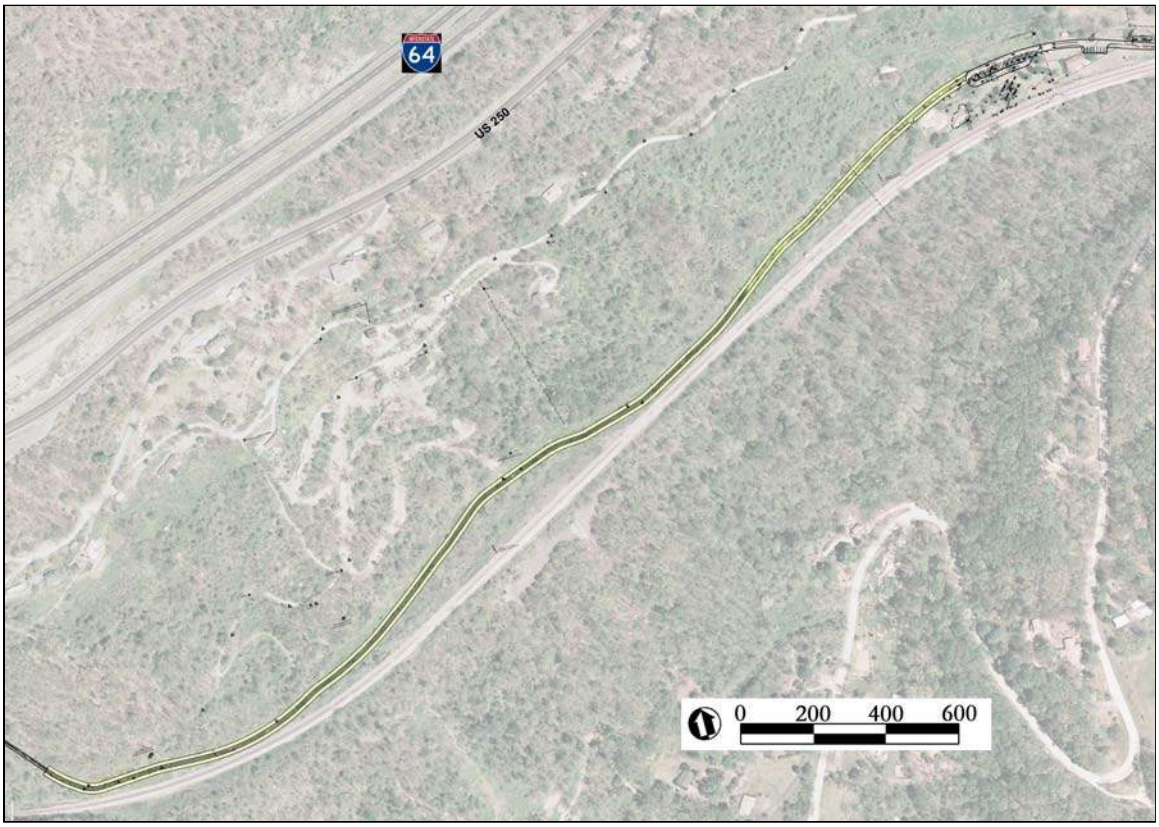

Figure #5: Section 2 – Eastern Trail, shaded in yellow.

Several potential nineteenth century residential sites identified during a previous reconnaissance level survey lie north of and upslope from the proposed eastern trail (See Ford 2006). In addition, a 1937 aerial photograph and a 1939 Waynesboro East topographic map showing the eastern portion of the project area verify the presence of residences on both sides of the historic railroad line up through the first half of the twentieth century.

Construction of the proposed trail along the eastern corridor will not impact any one of these potential residential sites.

As currently proposed, Section 2 will follow the existing historic railroad bed corridor from the eastern trailhead to the eastern portal of the tunnel. Construction for Section 2 will consist of improving the gravel bedding of the historic railroad bed where necessary and paving its course with asphalt surfacing. Extensive fill soils and gravel bedding will be required to be placed in an area approximately 150 – 500 feet east of the eastern portal of the tunnel where construction for the existing CSX railroad bed (ca. 1944) has undermined the historic railroad corridor. Construction in this area will build up the trail to historic grade prior to asphalt surfacing. Along the entire course of the eastern trail, weeds and other invasive vegetation will be removed prior to asphalt surfacing and existing drainages will be improved where necessary.

Section 3 – Blue Ridge Tunnel (4,270 feet)

Section 3 encompasses the Blue Ridge Tunnel proper, that portion of the tunnel that was blasted and excavated through stone and contains a stone roof, and the approach cuts immediately adjacent to the east and west portals that were also blasted and excavated through stone but presently contain only stone sides (See Figure #6).

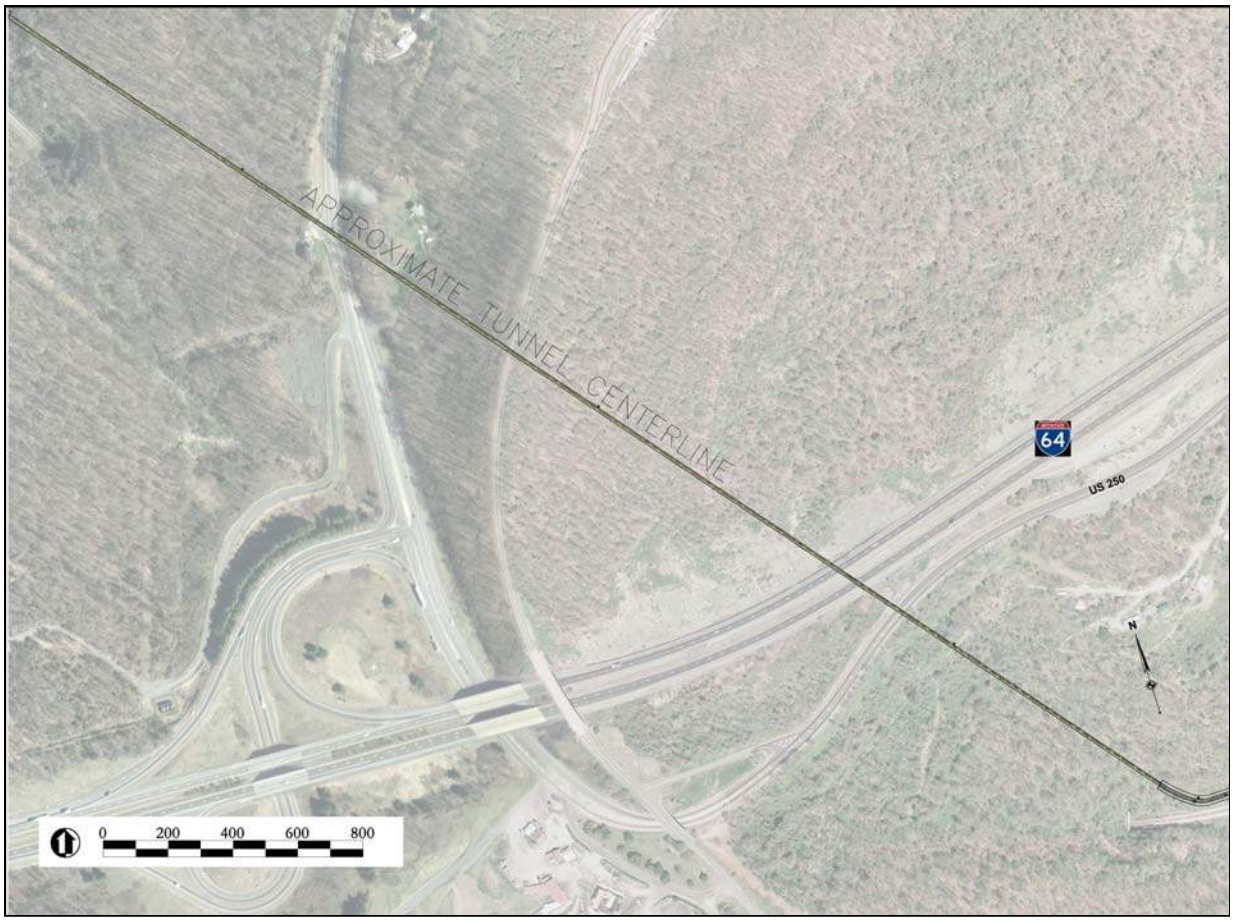

Figure #6: Section 3 – Blue Ridge Tunnel, shaded in yellow.

As currently proposed, construction for Section 3 will entail rehabilitation of the entire tunnel to include stabilization of the natural stone and brick lining where necessary, construction of drainage ditches on either side of the greenway corridor, and construction of a raised and paved pedestrian corridor through the tunnel. Two thick concrete bulkheads present within the tunnel will be required to be removed.

Due to the presence of a significant amount of historic and non-historic gravel railroad bedding and the rock base of the tunnel, no formal archaeological excavation was proposed within the tunnel proper.

Section 4 – Western Trail (3,900 feet)

Section 4, the proposed location for the western trail, is characterized by an approximately 3,900 foot long path through a steep, heavily wooded area with small areas of dense undergrowth (See Figure #7). The western trail begins at the western portal of the Blue Ridge Tunnel and terminates at the western trailhead. The trail route was cleared of underbrush and small trees and flagged for its entire length. For most of its western end, the

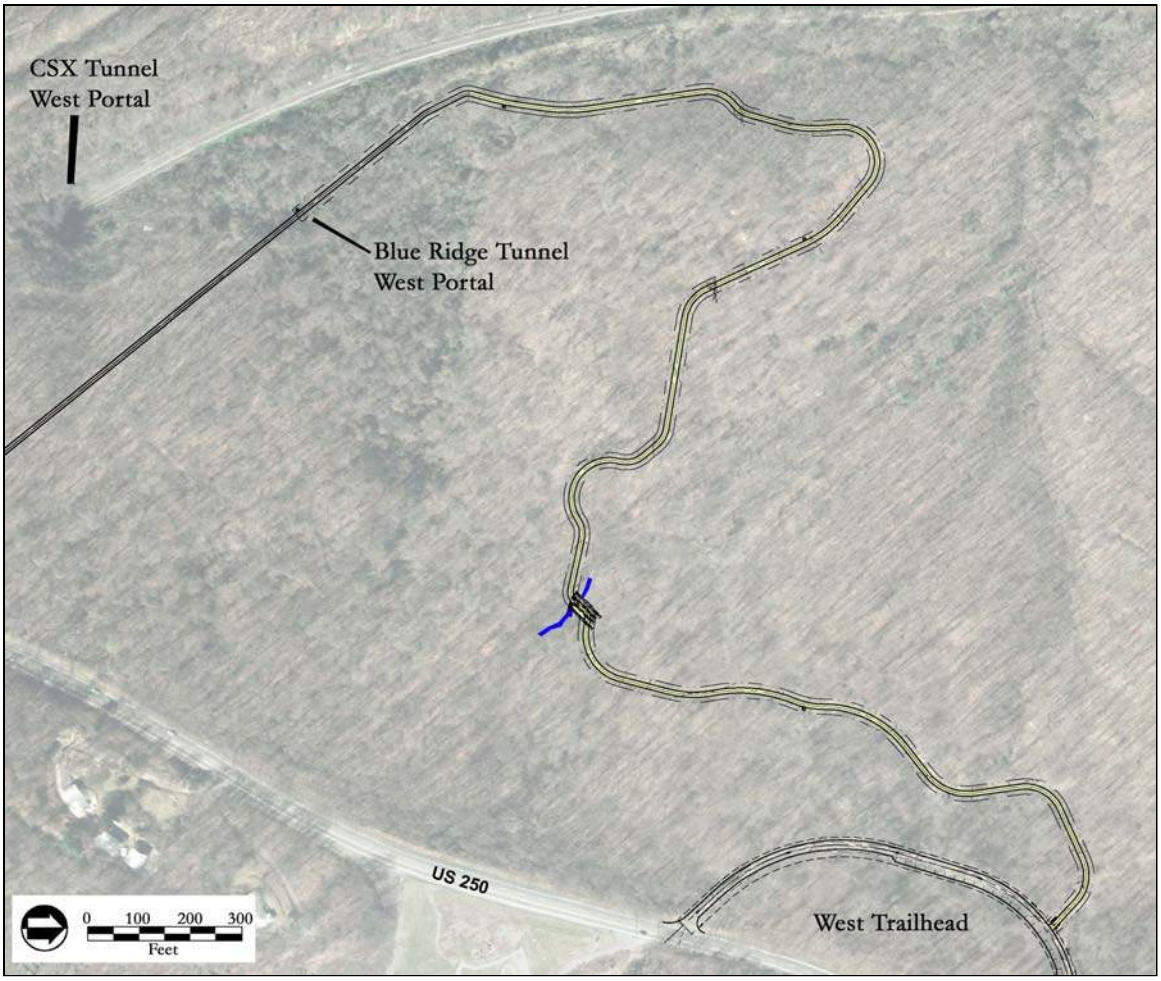

Figure #7: Section 4 – Western Trail, shaded in yellow and showing western CSX and historic Blue Ridge Tunnel portals.

trail follows an old road bed (See Figure #8) varying in width between 12 -15 feet. The road is covered in sod or dense weeds and is heavily eroded in places. No structures were found to lie anywhere in the vicinity of the proposed western trail.

As currently proposed, construction for Section 4 will consist of both cutting upslope soils and bringing in fill soils where required for down slope embankments to bring the trail to a proper width for a 2 to 1 side slope. Surfacing for the entire length of the western trail will consist of a crusher-fine stabilized gravel. Where minor drainages will be required to be crossed, trail grade will be raised and concrete piping placed running underneath.

Figure #8: Shovel testing along Section 4 – Western Trail
showing portion of trail located on old road bed.

Section 5 – Western Trailhead (1,150 feet)

Section 5, the proposed location for the western trailhead, is an approximately 1,150 foot long semicircular section of abandoned Route 250 road corridor. The surface of the abandoned road bed is paved in asphalt however heavy weeds and other undergrowth are present in many areas along the sides of the road and obscure visibility (See Figure #9). A soil shoulder along the interior curve of the semicircular road section, ranging from approximately 10 to 20 feet in width, was noted to contain colluvial deposits and soil push piles in places and is also heavily overgrown with vegetation. Along the eastern (upslope) side of the abandoned semicircular road bed areas of steep soil faces, in places approximately 15 feet above the surface of the road bed, were noted to be present (See Figure #10). Along the western (downslope) side of the abandoned semicircular road bed artificial embankments sitting well above the natural grade, approximately 10 feet or taller in some

Figure #9: Section 5 – Western trailhead looking north and showing asphalt paved road bed and weeds and undergrowth on shoulders.

Figure #10: Section 5 – Western trailhead looking east and showing weeds and undergrowth on shoulders and steep soil faces above road bed.

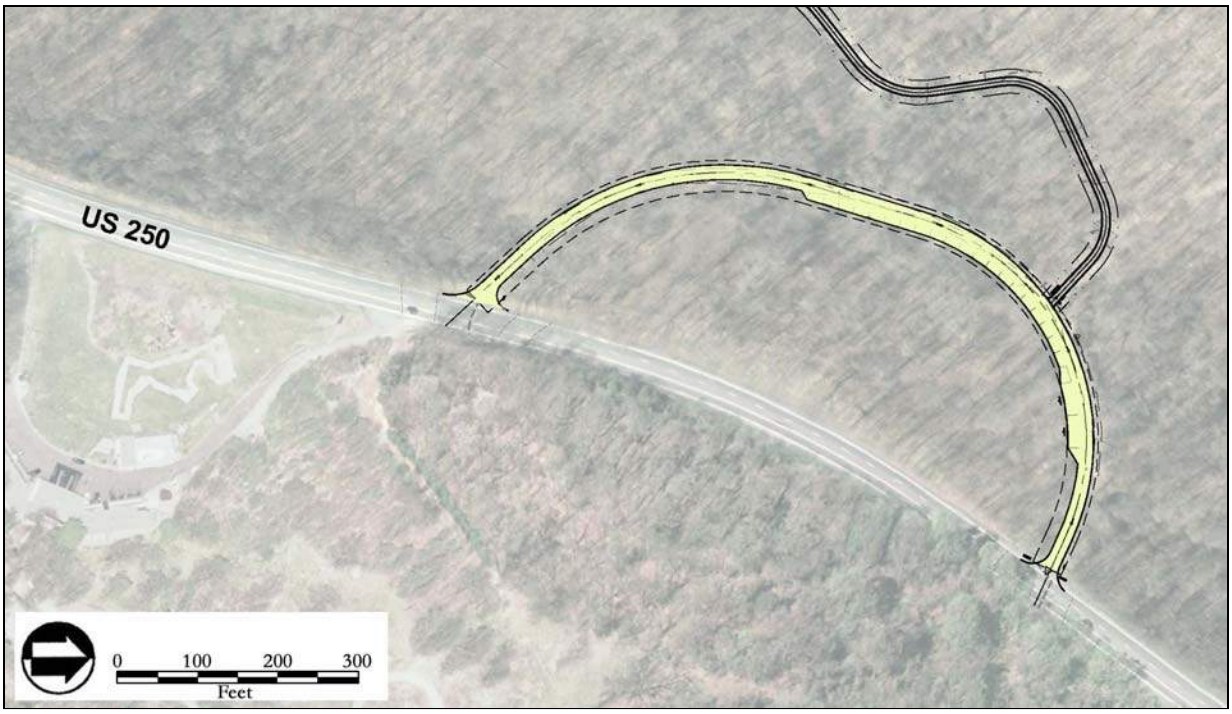

Figure #11: Section 5 – Western Trailhead, shaded in yellow, showing intersection with Route 250.

places, were noted. The Route 250 road corridor was constructed in the mid-1930s, most likely through a cut and fill process.

The western trailhead will be a single direction 18-foot wide asphalt surfaced road with approximately twenty 9 x 20 foot parking spaces for cars, and two 14 x 40 foot parking spaces for buses. Entrance to the western trailhead will be on the upslope or southern end of the abandoned road bed, and exit will be on the downslope or northern end of the abandoned road bed (See Figure #11). As currently proposed, construction for Section 5 will consist of widening the existing abandoned road corridor in targeted places, the construction of a linear vehicle parking area, and the construction of new entrance and exit aprons where the western trailhead intersects current Route 250.

Approximately 450 feet from the upslope or southern entrance to the western trailhead from Route 250, the single direction road will be widened to 27 feet for passenger car parking and 32 feet for bus parking. The additional width will be taken from the east side of the roadway. Construction of the parking area will consist of cutting and excavation of the upslope bank in places to widen to specifications. Extant poured concrete slabs now in place at the southern entrance and northern exit aprons will be removed. The entire course of the western trailhead will be resurfaced with new asphalt.

4 Prehistoric and Historic Setting

This chapter presents an overview level prehistory and history of the Blue Ridge Mountains and vicinity and is intended to provide an interpretive context for archaeological and archival research for the Blue Ridge Tunnel Greenway project.

Prehistoric Cultural Context

The history of Native American occupation of Virginia is divided into three broad chronological periods: the Paleoindian, the Archaic, and the Woodland periods. The Archaic and Woodland periods each have three sub-periods: Early, Middle and Late. Table 1 below represents the dates that have been assigned to each period.

Table 1: Prehistoric Periods in Virginia

Cultural Period	Years Before Present
Paleoindian	12,000 – 10,000
Early Archaic	10,000 – 8,500
Middle Archaic	8,500 – 5,000
Late Archaic	5,000 – 3,200
Early Woodland	3,200 – 1,700
Middle Woodland	1,700 – 1,000
Late Woodland	1,000 - 400

The prehistoric periods in Virginia are defined by both diagnostic material culture but also through the recognition and analysis of broader patterns of settlement, subsistence, technology and socio-cultural organization developed from prior archaeological research in Virginia. While much of Virginia prehistory can be characterized by as a hunter and gatherer subsistence economy, many significant developmental trends such as adaptive response to a changing environment, long-term population growth, increasing intensification of production, exploitation and settlement of riverine environments, adoption of sedentary lifestyles, increasing organizational complexity, and the development of agriculture and adoption of ceramics have been identified that are hallmarks of periodization.

Humans have occupied the central Shenandoah Valley and Piedmont physiographic regions of Virginia for at least 12,000 years. The material remains of the American Indians who lived in these areas are found in all types of settings including mountain, upland, lowland and along the region's numerous rivers and drainages. Until very recently however, the cultural history of mountain Virginia, and in particular the central Blue Ridge Mountains, has relied on the history of adjacent regions and was therefore not well known. Nash has noted that for the better part of the last century scholars had assumed that the mountainous regions were physical and cultural barriers that were uninhabitable between 9,000 – 12,000 years BP. Mountain Virginia was also never considered to be significant to more widespread

lowland cultural development. This is likely a direct result of the lack of historical and archaeological research in mountainous Virginia.[4]

Paleoindian (12,000 – 10,000 BP)

Paleoindian populations occupied what is now North America by the end of the Pleistocene during a period when Late Glacial climatic and environmental conditions dominated the landscape. Paleoindians are typically characterized as practicing a highly mobile subsistence based economy focusing on the hunting of large but now extinct mammals. Smaller game and a diversified foraging are believed to have supplemented this diet. In Virginia and elsewhere, Paleoindian populations are associated with the distinctive Clovis-type fluted lanceolate point. In Virginia Clovis points are concentrated in Piedmont and Tidewater Southside Virginia. Within Augusta and Nelson counties, only 5 Clovis points have been identified to date. Although the presence of Paleoindian peoples in Warren County in the Shenandoah Valley has been dated to 11,500 years BP, pre-Clovis technology strata at the Cactus Hill site in Sussex County in Tidewater Virginia may date to 15,000 years BP.[5]

Because of the narrowing of the Blue Ridge Mountains at Rockfish Gap and the relatively low elevation at this point, the pass was likely used for several thousand years by American Indians as an east-west thoroughfare between the Piedmont and Valley physiographic regions. Due to the harsh terminal Pleistocene environment, occupation of the Blue Ridge Mountains was marginal and likely characterized by mobile foraging and resource acquisition. These sites types can be characterized as small-scale hunting camps and quarry sites related to larger-scale lowland sites on both sides of the Blue Ridge.[6]

Archaic (10,000 – 3,200 BP)

The beginning of the Archaic period is associated with the end of the Pleistocene and the gradual onset of a warmer and drier climate. The generally warming environment initiated a transition from a predominantly boreal forest to a mixed deciduous woodland. This transition occurred more quickly in lowland than upland and mountainous areas.[7]

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[4] Carole Nash, *Overview of the Cultural History of Shenandoah National Park*, 1. Unpublished manuscript in possession of author, 2000.

[5] William M. Gardner, Flint Run PaleoIndian Complex and its Implications for Eastern North American Prehistory. *Annals of the New York Academy of Sciences*, Vol. 288 (1977): 251-263; William M. Gardner, An Examination of Cultural Change in the Late Pleistocene and Early Holocene. In J. Mark Wittkofski and Theodore R. Reinhart, eds., *Paleoindian Research in Virginia: A Synthesis*. Archaeological Society of Virginia Special Publication No. 19, 5-52. (Richmond: Archaeological Society of Virginia, 1989); William M. Gardner, Paleoindian Settlement Pattern and Site Distribution in the Middle Atlantic. In R. Landman, ed., *Anthropological Careers: Essays Presented to the Anthropological Society of Washington During its Centennial Year 1979*, 51-73. (Washington: Anthropological Society of Washington, 1981); William M. Gardner, Comparison of Ridge and Valley, Blue Ridge, Piedmont, and Coastal Plain Archaic Period Site Distribution: An Idealized Transect (Preliminary Model). *Journal of Middle Atlantic Archaeology*, Vol. 3 (1987): 49-80; Bruce Bower, *Science News*, Vol. 157, No. 16 (2000): 244; M. Parfit, The Dawn of Humans: Hunt for the first American. *National Geographic*, Vol. 198 (2000): 40-67; E. Randolph Turner, III., Paleoindian Settlement Patterns and Population Distribution in Virginia. In J. Mark Wittkofski and Theodore R. Reinhart, eds., *Paleoindian Research in Virginia: A Synthesis*. Archaeological Society of Virginia Special Publication No. 19, 71-94. (Richmond: Archaeological Society of Virginia, 1989); William J. Hranicky, *McCary Fluted Point Survey of Virginia, Point Numbers 1 to 1055*. (Bloomington: Authorhouse, 2008).

[6] Nash, Overview, 2-3.

[7] Victor Carbone, *Environment and Prehistory in the Shenandoah Valley*. Ph.D. Dissertation, The Catholic University of America, 1976; P. A. Delcourt and H. R. Delcourt, Vegetation Maps for Eastern North America:

Cultural adaptations to the Early Archaic period are similar to the preceding Paleoindian period, small mobile populations who depended upon hunting. However following the extinction of Pleistocene megafauna, Early Archaic populations predominantly hunted smaller sized mammals. Material culture typically associated with Early Archaic peoples includes stone axes, drills, and corner and side-notched crypto-crystalline points implying a shift in hafting technology possibly associated with the adoption of the atlatl.[8]

Cultural adaptations to the Middle Archaic period are commonly associated with the full environmental transition to a mixed deciduous woodland setting. The population of Middle Archaic peoples increased as a result of the pursuit of more diversified resources over a larger ecological area. Sites however remained small in size and are more commonly found in upland as opposed to floodplain and riverine settings. Characteristic material culture for the period includes the adoption of stemmed points and a shift to use of more local or regional lithics such as quartz and quartzite.[9]

Cultural adaptations to the Late Archaic period are characterized by a continued population increase, a reduction in the size of resource utilization area, an increase in site size, preference for the location of sites in floodplain and riverine environments, and an increasingly sedentary lifestyle. Characteristic material culture for the period includes stemmed and side-notched points and by the end of the period the wide-spread adoption of a broader Savannah River type blade. Carved soapstone vessels, a regionally quarried lithic, are also commonly found on Late Archaic sites.[10]

Archaic period sites (10,000 to 3,200 years BP) within the Blue Ridge Mountains are more numerous and several have been excavated within the Blue Ridge Mountains. These sites can be generally characterized as small seasonal foraging camps centered around the procurement of small game, nuts and fruit. These camp sites would likely be related to larger riverine focused base camps. During the Late Archaic period, more substantial seasonal base camps would have been established on broad alluvial fans of the eastern edge of the Blue Ridge Mountains. In addition other site types including exploitative camps and quarries are also identified in the Blue Ridge Mountains during this period. [11]

40,000 Years BP to the Present. In Romans, ed., *Geobotany: An Integrating Experience*, 123-166. (New York: Plenum, 1981).

[8] William M. Gardner, An examination of cultural change in the Late Pleistocene and Early Holocene (ca. 9200 – 6800 BC). In J. Mark Wittkofski and Theodore R. Reinhart, eds. *PaleoIndian Research in Virginia: A Synthesis*, 5-52. Archaeological Society of Virginia Special Publication No. 19. (Richmond: Archaeological Society of Virginia, 1989).

[9] Carbone, *Environment and Prehistory*, 76: Gardner, Cultural Change in the Late Pleistocene and Early Holocene, 23; Daniel L. Mouer, *The Archaic to Woodland Transition in the Piedmont and Coastal Plain Sections of the James River Valley*, Virginia. Ph.D. Dissertation, Department of Anthropology, University of Pittsburgh, Pittsburgh, Pennsylvania.

[10] Mark Catlin, Jay F. Custer, R. Michael Stewart, Late Archaic Culture Change in Virginia: A Reconsideration of Exchange, Population Growth and Migrations. *Quarterly Bulletin of the Archaeological Society of Virginia*, Vol. 37 (1982): 123-140; Mouer, *Archaic to Woodland Transition*.

[11] Nash, "Overview," 4-6.

Woodland (3,200 – 400 BP)

The beginning of the Woodland period is associated with a relatively cooler and wetter climate similar to our modern environment.

Although there is much cultural continuity between the Late Archaic and Early Woodland period, one of the more diagnostic material culture technology adopted by Woodland peoples is ceramics. Early ceramics resemble the preceding Archaic period's soapstone bowls. Typical material culture types include small Savannah River and a number of stemmed points. Cultural trends initiated during the Late Archaic, including large populations, preference for floodplain and riverine settings, continue into the Early Woodland period.[12]

Cultural adaptations to the Middle Woodland period are characterized by the appearance of cord and net impressed ceramics and the continuation of more sedentary floodplain and riverine settlement with a broader utilization of resources within this single environment. Lithic tools adopted included notched and un-notched triangular points. In the northern Shenandoah Valley small stone burial mounds containing individual interments also first begin to appear.[13]

By the Late Woodland period agriculture is widely practiced and large sites on major rivers become established. Throughout the Shenandoah Valley and Piedmont Virginia, Late Woodland peoples created accretional burial mounds containing periodic interments. These mound sites became socially significant at a regional level. Material culture during the Late Woodland period included a diverse array of ceramics and small triangular points most commonly associated with bow and arrow technology.

Small, short duration base and ephemeral camps, resource procurement sites, and less common large-scale hunting camps are characteristic of Woodland period (3,200 – 400 years BP) sites identified in the Blue Ridge Mountains.[14] At the time of European contact, ca. early 1600s, a larger Monacan village identified as 'Monasukapanough'[15] is identified on the 1608 John Smith map of Virginia. Although historical documents note the periodic presence of American Indians in central Virginia and the Shenandoah Valley up through the mid-eighteenth century, very little is known about them. On the contrary, archaeological evidence suggests the abandonment of large sites by the early seventeenth century. According to Nash however, "recent primary document research indicates that relict Native groups may have continued to live in the lower elevations of the Blue Ridge, giving rise to multi-ethnic communities which have historically defined themselves as "Indian."[16]

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[12] Michael J. Klein and Thomas Klatka, Lat Archaic and Early Woodland Demography and Settlement Patterns. In Theodore R. Reinhart and Mary Ellen N. Hodges, eds., *Late Archaic and Early Woodland Research in Virginia: A Synthesis*. Archaeological Society of Virginia Special Publication No. 23. (Richmond: Archaeological Society of Virginia, 1991).

[13] Jeffrey Hantman and Michael J. Klein, Middle and Late Woodland Archaeology in Piedmont Virginia, 5-52. In Theodore R. Reinhart and Mary Ellen N. Hodges, eds., *Middle and Late Woodland Research in Virginia: A Synthesis*. Archaeological Society of Virginia Special Publication No. 29. (Richmond: Archaeological Society of Virginia, 1992).

[14] Nash, "Overview," 9, 16.

[15] It is believed that the Monacan site of Monasukapanough is located in Albemarle County.

[16] Nash, "Overview," 16-17.

Contact (1607 – 1750)

Permanent European and African American migration to and settlement of the central Piedmont from the Tidewater occurred slowly and by the second quarter of the eighteenth century had reached the eastern foothills of the Blue Ridge Mountains in what is now western Albemarle and Nelson counties. Early land grants in the area just east of the Blue Ridge Mountains in Albemarle and Nelson counties date to the 1739 – 1740 period.[17] Permanent European and African American migration to and occupation of the central Shenandoah Valley, and Augusta County in particular, largely occurred from the north via Pennsylvania and Maryland and by the second quarter of the eighteenth century had also reached the western foothills of the Blue Ride Mountains. Early land grants in the area just west of the Blue Ridge Mountains in Augusta County date to the 1738 – 1740 period.[18] By the second half of the eighteenth century, Albemarle, Augusta and Nelson counties were largely settled either by landowners or their agents. Settlements consisted of isolated clusters of residences and small communities on both sides of the Blue Ridge Mountains. The Blue Ridge Mountains however, and land on its eastern and western flanks containing the Blue Ridge Tunnel project area, remained largely unpatented during this early period of settlement. This was largely due to the presence of extremely steep slopes and the fact that the soils were not ideally suited for tobacco or mixed grain agriculture.

The first permanent settlers in the larger Rockfish Gap region were likely Scotch-Irish Presbyterians. The Rockfish Meeting House, a place of worship near current Nellysford in the Rockfish River valley of Nelson County, was established in 1746 by local Presbyterians and Scotch-Irish Presbyterian dissenters from Pennsylvania. The Meeting House was noted in the Diary of Robert Rose in 1750.[19]

With growing European and African populations on both sides of the Blue Ridge Mountains by the second quarter of the eighteenth century, the Rockfish Gap pass likely became an informal thoroughfare that encouraged both commerce and communication between the geographic regions. Early settlers in the Piedmont and Shenandoah Valley likely followed a series of pre-existing informal trails over the Blue Ridge Mountains originally established by Native Americans. However Pawlett has noted that until the mid-eighteenth century the Three Notch'd Road passing through Wood's Gap (Jarman's Gap) was the principal crossing of the Blue Ridge Mountains. The first formal road order mentioning Rockfish Gap was an order to clear a road from Mechum's River in Albemarle County to Rockfish Gap in 1748. By the mid-eighteenth century, this road likely carried both agricultural produce and cattle from the Shenandoah Valley to the Piedmont and Tidewater regions.[20] The first written description of the Rockfish Gap area was penned by

[17] In 1744 Albemarle County was created from Goochland County. Until 1761 when it was divided, Albemarle County contained what are now Amherst, Buckingham, Fluvanna and Nelson counties and parts of Appomattox, Bedford and Campbell counties. Amherst County, containing all of what is now Nelson County, was separated from Albemarle in 1761. Nelson County was separated from Amherst County in 1807. Thanks to Bob Vernon for his research on patent and land grant data for western Albemarle and Nelson counties.

[18] Augusta County, a vast area of land with no formal western boundary, was formed from Orange County in 1738. By 1791 it had assumed its current boundaries.

[19] Thomas Jefferson Planning District, "Historic Resource Identification and Assessment of Nelson County, Virginia," 25. Prepared by the Thomas Jefferson Planning District. NE-9, Department of Historic Resources, Richmond, Virginia.

[20] Richard K. MacMaster, *Augusta County History, 1865-1950*, 14. (Staunton: Augusta County Historical Society, 1988).

Robert Rose. In 1751 he implied that the route through the pass was informal but in good shape noting that it "might easily be fitted for carriages of any kind." By the mid-1760s, the earliest road construction through Rockfish Gap is recorded from the Albemarle and Nelson county side.[21]

Colony to Nation (1750 – 1789)

The Rockfish Gap pass played a prominent role during the Revolutionary War period. In 1781 the Virginia General Assembly was holding session in Charlottesville. The British Army, led by General Tarleton, attempted to capture the government of Virginia by surprising them with his attachment of Green Dragoons. As they proceeded westward, Jack Jouett, guessed their intention and rode his horse from Louisa County to Monticello and Charlottesville. He warned many of the legislators who escaped and fled westward through Rockfish Gap to Staunton just prior to the arrival of the British forces.

Post-Revolution late eighteenth century commerce and trade grew as the former Shenandoah Valley frontier became more stable. More permanent settlement stimulated an increase in agricultural production and processing centers. Agricultural produce and goods were shipped north-south via the Valley Pike (now Route 11) and east-west through Rockfish Gap.

By the late eighteenth century less desirable land on both the eastern and western flanks of the Blue Ridge Mountains in both Augusta and Nelson counties began to be patented. In Nelson County, John Price was granted two parcels in 1786, one for 237 acres with John McAnally, and a second by himself for 340 acres. Price later acquired McAnally's interest in the first parcel. Price's land encompassed what is now the eastern portion of the Blue Ridge Tunnel project area containing the southern portion of the tunnel and the eastern trail and trailhead. It is not clear what if anything Price did with the two parcels totaling 577 acres.[22]

Sometime during the mid-to-late eighteenth century, the Mountain Top inn and tavern[23] was constructed presumably to take advantage of the increasing number of travelers using the pass. Located in the middle of Rockfish Gap, the inn and tavern was a prominent and well-known landmark and the only accommodation for travelers in the area for some time. By the mid-to-late nineteenth century, the Mountain Top inn and tavern was transformed into a health resort centered around several springs. By 1902, there was the main Inn, a bottling house (for spring water), a spring house, an ice pond and 7 cottages. Mountain Top Inn is

[21] Nathaniel M. Pawlett, "The Rockfish Gap Road," np., in K. Edward Lay, "Rockfish Gap Turnpike in Virginia," Virginia Road Trace 10, Vol. 1. School of Architecture, University of Virginia, Spring 1982; K. Edward Lay, "Staunton and James River Turnpike," np. Virginia Road Trace 5, Vol. 1. School of Architecture, University of Virginia, Fall 1978.

[22] Price may have been interested in the timber rights to the land or perhaps some future development of the Rockfish Gap pass itself. By the first half of the nineteenth century, portions of Price's patent were re-patented suggesting that the land was eventually abandoned and never satisfied in terms of establishing proper title and securing a patent.

[23] The Mountain Top House was originally known as the Rockfish Inn.

reported to have burned in 1909.[24] The Mountain Top Inn stood in Rockfish Gap up through the late 1960s when it as demolished for the construction of Interstate I-64.[25]

Early National (1789-1830)

Although sparsely settled in the late eighteenth century, what is now downtown Waynesboro was platted and sold ca. 1798, and the town was officially recognized by the Commonwealth of Virginia in 1801. The area acquired its name from General Anthony Wayne, who defeated a confederation of Indian tribes at the Battle of Fallen Timbers in Ohio. Waynesboro was incorporated as a part of Augusta County in 1834. In 1810 the town had a population of 250 and by the arrival of the Blue Ridge Railroad the population numbered 457. Due to the presence of the relatively well established town of Waynesboro at just below Rockfish Gap in the first quarter of the nineteenth century, few smaller communities developed in Augusta County on the western flanks of the Blue Ridge Mountains.

In August of 1818, the commission appointed to establish the location of the University of Virginia met at the Mountain Top House in Rockfish Gap. Called the Rockfish Gap Commission, a total of 24 prominent Virginians including Thomas Jefferson, James Madison, President James Monroe, and Chief Justice John Marshall eventually selected Charlottesville as the location for the Commonwealth's first public institution of higher education.

Following the War of 1812, Virginia began to actively support the improvement of its commercial transportation infrastructure. In 1816 the Board of Public Works was established by the General Assembly. In the early years, this state entity joined with local and regional private corporations to fund and construct turnpikes and canals, and later railroads. By 1818 the General Assembly approved the formation of the *Staunton and James River Turnpike Company*. Within Albemarle and Nelson counties, the road ran from Scottsville on the James River in a northwesterly direction to and through Rockfish Gap and then westward on to Staunton in Augusta County. Between 1818 and 1825, a substantial amount of money was raised for its construction. After the General Assembly released $20,000 in construction funds to the turnpike company in 1825, work on the road was initiated. Although the first toll was collected in 1826, the road was not completed until 1827. On the east side of the Blue Ridge mountains, the road "followed roughly what is now Route 20 to Keene and two county roads (712 and 692) to Route 250 just east of the crest of the Blue Ridge." A toll gate and associated toll keeper's house was erected within Rockfish Gap most likely by 1826. In November 24, 1827 report to the Board of Public Works the treasurer of the Staunton and James River Turnpike mentioned "the present keeper of the gate at Rockfish Gap" and expenses for a 'toll house.' A late 1830s survey for a railroad through Rockfish Gap between Albemarle and Augusta counties shows the route of the turnpike road, the location of the 'toll gate' and an associated structure, most likely the toll keeper's residence (See Figure #12). By mid-century, the turnpike company decided

[24] Margaret G. Small and Catherine C. Seaman, *A History of Northern Rockfish Valley, Nelson County, Virginia*, 27 (Lovingston: Nelson County Historical Society, 1998); Gladys B. Chen, "Mountain Top Inn: A Popular Spot More than a Century Ago," 71-72. *Augusta Historical Bulletin*, Vol. 16, No. 1 (Spring 1980).
[25] K. Edward Lay, "Rockfish Gap Turnpike in Virginia," np. Virginia Road Trace 10, Vol. 4. No. 59, Mountain Top Inn. School of Architecture, University of Virginia, Spring 1982.

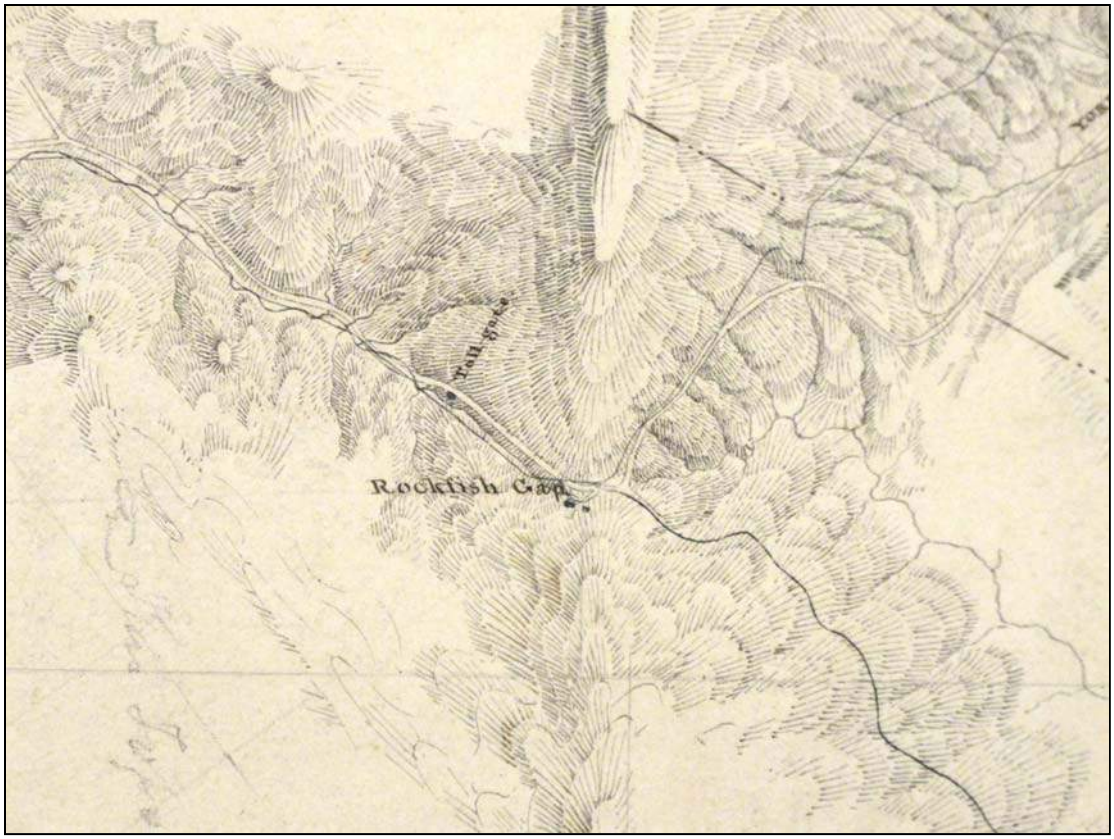

Figure #12: Detail, *Surveys for a Railroad from Scottsville to Staunton*, showing Rockfish Gap vicinity, Staunton and James River turnpike road, and the toll gate keeper's residence. Charles B. Shaw and John Couty, 1835.

to improve the Staunton and James River Turnpike by planking it in certain locations. This conversion was initiated in 1850.[26]

The road was briefly described in the Spring of 1851 by Mary Jane Boggs Holladay. "When we commenced the ascent of the Blue Ridge, the road wound along the side of the mountains, so as not to give the idea of a steep ascent. …We came slowly and often paused so strange the road, so wondrous were the scenes it showed."[27]

Antebellum (1830-1860)

In 1828, the *Rivanna and Rockfish Gap Turnpike* was incorporated and books for subscription of stock were opened in Charlottesville, Milton, and Little York. The goal of this turnpike was to improve a substantial section of the Three Notched Road.[28] The road ran from "Merriwether's Bridge [at the Woolen Mills on the Rivanna River] to the junction thereof with the Staunton and Scottsville Turnpike Road at Brook's Tavern [in Albemarle County at the base of the east side of the Blue Ridge mountains], making by actual

[26] Douglas Young, "A Brief History of the Staunton and James River Turnpike," vii. May 1975, Revised March 1980 and September 2003. Ms. on file at the Virginia Highway & Transportation Research Council, Charlottesville, Virginia; K. Edward Lay, "Staunton and James River Turnpike," np. Virginia Road Trace 5, Vol. 1. School of Architecture, University of Virginia, Fall 1978; Moore, *Albemarle*, 177, 179.
[27] Elizabeth Morrill Holladay, *The Journals of Mary Jane Boggs Holladay, 1851-1861*, 6-9 (Self published, 1970).
[28] John Hammond Moore, *Albemarle: Jefferson's County, 1727-1976* (Charlottesville: University Press of Virginia, 1976), 179-180.

measurement the distance of 20 miles, 73 poles." Road construction began in 1829 and was completed in 1832.[29]

Individual settlement of the flanks of the Blue Ridge Mountains at Rockfish Gap was slow to occur. In Nelson County, Isaac Womeldof acquired two parcels in 1841, near the Staunton and James River Turnpike and Carolina Road. Womeldorf established a residence there just west of what would become Afton. John Critzer also acquired land between what would become Afton and the Rockfish Gap. In 1853, the Blue Ridge Railroad condemned over 5,000 linear feet (ca. 12-acres) of Critzer's land east of the eastern portal to the Blue Ridge Tunnel for their needs. In Augusta County James Bell sold two parcels of land totaling 210 acres "at or near the foot of the Blue Ridge Mountains at Rockfish Gap on both sides of the Mountain Branch" to Thomas Macarty in 1848. Macarty and his wife built a "small log tenement" adjacent to the turnpike road and occupied the property until 1854 when they sold 1 ½ acres including the log structure to John M. Gardner. Gardner in turn sold it to Frances M. Ash in 1863. Ash and his heirs occupied the site and an adjacent 50 acre parcel containing "unimproved mountain land" until 1890. Bell also sold a 5 ½ acre parcel near Rockfish Gap to the Staunton and James River Turnpike Company in 1845. The plat accompanying the deed of sale shows a structure, most likely the toll gate keeper's house, adjacent to the turnpike road (See Figure #13). [30]

Figure #13: Detail, plat showing 5 ½ acres sold to the Staunton and James River Turnpike Company by James Bell in 1845. Note turnpike road and structure at bottom.

The presence of the turnpike road crossing Rockfish Gap, and several other roads converging at the base of the Blue Ridge Mountains, ultimately attracted clusters of settlers and the development of small communities along its length. Located at the base of the eastern side of the Blue Ridge mountains in Albemarle County, by the turn of the nineteenth century a small community of 'wagoners' centered on the transportation of agricultural produce grew up along the road leading to Rockfish Gap. The community of

[29] Lay, "Rockfish Gap Turnpike," np.
[30] Nelson County Deed Books 10:298, 485; 13:570. Nelson County Courthouse, Clerk's Office, Lovingston, Virginia; Augusta County Deed Books 65:176; 68:104; 74:420; 80:714; 84:58; 112:59. Augusta County Courthouse, Clerk's Office, Staunton, Virginia.

New York, or York/Little York, was reportedly established by James Hays. Due to its location along Stockton Creek near the intersection of the *Rockfish Gap* and *Staunton and James River* turnpikes, New York thrived for nearly half a century until the arrival of the railroad. In 1810, the community was one of four in Albemarle noted to have a post office.[31] In 1835, Joseph Martin's *Gazetteer of Virginia* described New York in detail. "It is situated in the western part of the County, near the foot of the Blue Ridge, it contains 15 houses, 2 general stores, 1 tan yard, 1 jackscrew manufacturer, 1 boot and shoemaker, and 1 blacksmith's shop. Population 70" (See Figure #14).[32]

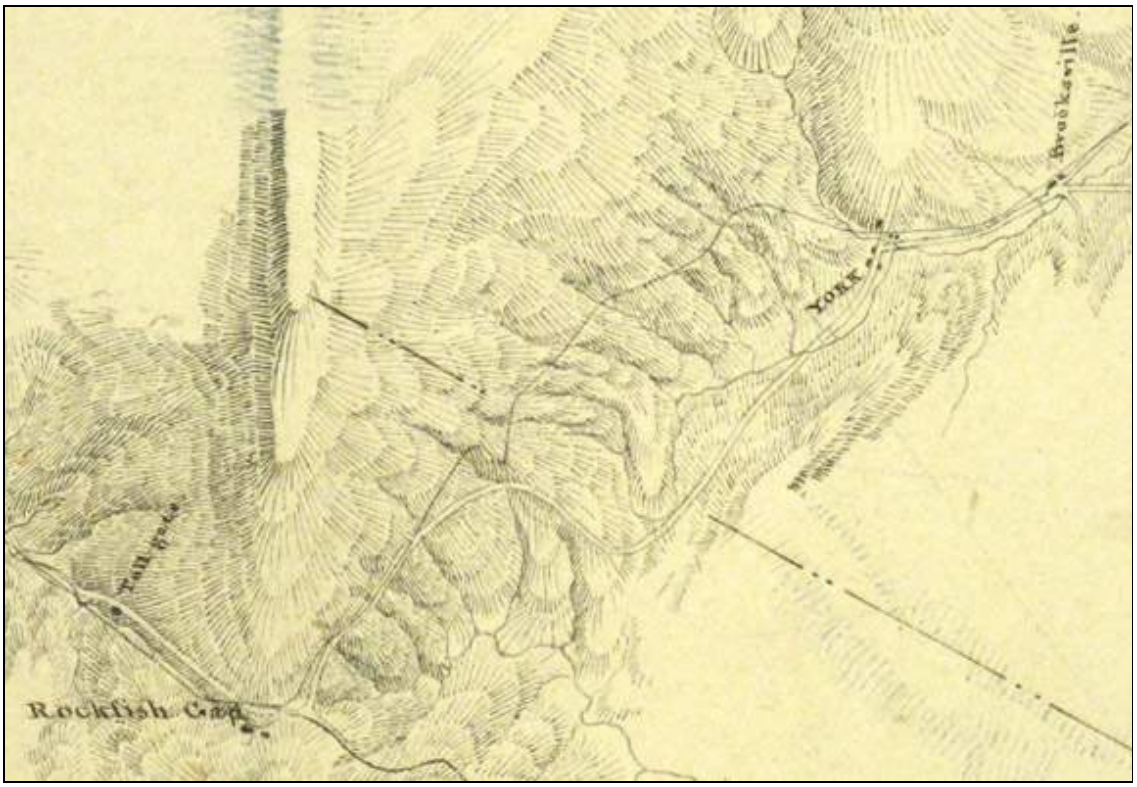

Figure #14: Detail, Surveys for a Railroad from Scottsville to Staunton, showing small communities of York and Brooksville or Brooks Tavern at the eastern base of the Blue Ridge Mountains in Albemarle County. Charles B. Shaw and John Couty, 1835.

Located in Nelson County on the east side of the Blue Ridge Mountains is Afton, Virginia. Most likely established ca. 1858-1859, Afton was a railroad town that grew up around the line of the Blue Ridge Railroad. As the western-most depot east of the Blue Ridge mountains, it catered to regional commerce, and was a major shipping point for Royal Orchard and other regional agricultural produce during the late nineteenth and early twentieth centuries (See Figure #15).[33]

[31] Moore, *Albemarle*, 89, 93.
[32] Joseph Martin, *A New and Comprehensive Gazetteer of Virginia, and the District of Columbia,* 117. (Charlottesville, Joseph Martin, 1835); Edgar Woods, *Albemarle County in Virginia*, 59-60, (Bridgewater, The Green Bookman).
[33] K. Edward Lay, "Rockfish Gap Turnpike in Virginia," np. Virginia Road Trace 10, Vol. 4. No. 53, "Afton Community." School of Architecture, University of Virginia, Spring 1982; Small and Seaman, *Northern Rockfish Valley*, 37; Ann Wright, "Afton: Mountain, Myth, Legend," 182-186. *Virginia Living*, Vol. 3, No. 6 (October 2005).

Figure #15: Detail, Map of Nelson County, Virginia, showing location of Afton as the westernmost depot of the Virginia Central Railroad east of the Blue Ridge Mountains. Jedediah Hotchkiss, 1866.

In 1836 the Louisa Railroad was established to build a rail line from Hanover Junction (Doswell) to Louisa courthouse. By 1840 the line had been extended westward to Gordonsville, and a decade later to Charlottesville when it was renamed the Virginia Central Railroad. The Board of Public Works chartered the Blue Ridge Railroad to extend the line westward from Mechum's River at the eastern base of the Blue Ridge Mountains to Waynesboro a distance of 18 miles. Claudius Crozet was hired as Chief Engineer of the Blue Ridge Railroad. Construction took place from 1850 – 1859. As construction of the Blue Ridge Railroad was much slower than expected, the Board of Public Works also funded the construction of a set of temporary tracks through Rockfish Gap. Charles Ellet was hired as Chief Engineer for the temporary tracks (See Figure #16).

Figure #16: Rockfish Gap and the Mountain House, showing the temporary tracks of the Virginia Central Railroad and the turnpike road (at right). Edward Beyer, 1858.

With the completion of the Blue Ridge Railroad just prior to the Civil War, the fate of local turnpike roads was sealed. Facing increasing maintenance costs and no longer able to attract considerable tolls for freight, in the mid-1850s the General Assembly passed a bill allowing

joint stock turnpike companies to sell portions of their roads to local municipalities. In 1857 Albemarle County acquired the facilities of the Rivanna and Rockfish Gap Turnpike for $1,500.[34]

Civil War (1860-1865)

While not a site of military engagement or encampment, due to its significance as a convenient pass between the Piedmont and Shenandoah Valley, the turnpike through Rockfish Gap and the Blue Ridge Tunnel was utilized as a strategic military route early on in the Civil War.

At least two times Confederate troops under the command of then Lt. Gen. Stonewall Jackson used the Rockfish Gap pass to facilitate quick movement of forces that ultimately led to strategic advantages. Jackson's Shenandoah Valley campaign in the spring of 1862 was designed to engage Federal troops in an effort to prevent them from reinforcing other Federal troops attempting to take the capital of Richmond. In late April of 1862 Jackson intentionally retreated before oncoming Federal troops leading his infantry and artillery up and over the Blue Ridge Mountains through Swift Run Gap east of Harrisonburrg. In a deceptive move however, instead of abandoning the Valley and marching east towards Richmond, as Federal troops had thought his move intended, he marched south to Mechum's River and then took a train on the Virginia Central Railroad westward through Rockfish Gap to Staunton. The flanking move completely surprised Federal troops, and the citizens of Staunton, who had thought their town had been left completely undefended. Staunton was an important supplier to both Jackson's and Lee's armies.

In mid-June of the same year, Jackson again used the convenient Rockfish Gap pass. This time at the request of Gen. Robert E. Lee, Jackson quickly advanced through the Blue Ridge Mountains via marching and use of the Virginia Central Railroad, arriving to assist in the defense of Richmond in only nine days.

Towards the end of the war, after defeating Gen. Jubal Early at Waynesboro in early March of 1865, Gen. Philip Sheridan took his two cavalry divisions and marched eastward through Rockfish Gap to Charlottesville and then on to Petersburg. [35]

Reconstruction and Growth (1865-1917)

Post-Civil War Virginia recovered from extensive physical and socio-economic devastation very slowly. One of the first industries to recover through consolidation was the railroad. In 1868 the Covington and Ohio Railroad was merged with the Virginia Central Railroad to complete the line of the Covington and Ohio. Industrialist Collis P. Huntington, a New York investor, was convinced to invest in the new Chesapeake and Ohio Railway and the transportation network ultimately repaired its lines damaged from the Civil War and completed its extension to the Ohio River. By 1870 the new line stretched between Richmond, Virginia and Huntington, West Virginia. During the depression of the early 1870s, Huntington's railroad went into receivership. It emerged in 1878 with a new name, the Chesapeake & Ohio Railroad. Throughout the late nineteenth and into the mid-

[34] Albemarle County Deed Book 56:279.

[35] *Waynesboro Battlefield. Reconnaissance Level Survey, DHR ID#136-5057.* Site file at the Department of Historic Resources Library and Archives, Richmond, Virginia.

twentieth century, the Chesapeake & Ohio Railroad expanded its lines into southwest Virginia and southern West Virginia and shipped the mineral and natural resource wealth from these areas east to supply growing domestic and commercial needs.

In 1890, land adjacent to and east of Waynesboro was plotted and sold. This town was incorporated as Basic City in the same year. Despite initial competition between the two towns, they were consolidated in 1923.

During the first half of the nineteenth century, large fruit orchards were predominantly the fancy of wealthy farmers or plantation owners. While both small and larger fruit orchards were planted early on in Virginia, commercial production for all orchards was limited to domestic and local consumption. During the post-Civil War period, orchards became more common but were still oriented to domestic consumption. Taylor has noted three exceptions, commercially oriented orchards that were in operation and planting during the second half of the nineteenth century. These orchards were Boaz in Covesville, Lupton in Winchester, and Royal Orchard near Afton in Albemarle and Augusta counties.[36]

Late nineteenth century orchards in Albemarle and Nelson counties in particular were known for growing the popular Newton Pippin, more commonly known as the Albemarle Pippin apple. The apple, known for its flavor and keeping quality, gained international fame when it was introduced to Queen Victoria of England in 1838 through Andrew Stevenson, then the minister to the Court of Saint James, and his wife Sally. Queen Victoria responded positively and lifted English export taxes on imported apples. Widely known in Virginia during the mid-nineteenth century, exports of the Albemarle Pippin to London grew exponentially. After the completion of the Blue Ridge Railroad in 1858, and the consolidation of the Chesapeake and Ohio Railway in the 1870s, the transportation network that facilitated shipment to eastern ports helped the export orchard industry to grow. Throughout the postbellum period, "the Albemarle County Pippin industry, profitably based on foreign exportation, thrived in fertile, elevated mountain coves on the spurs of the Blue Ridge until the end of World War I, when the British government reinstated import taxes on American apples in order to promote the apple industries of its Commonwealth countries." The establishment of the horticulture department at the Agricultural Experimental Station in Blacksburg in 1888 and subsequent improvements in cold storage and refrigeration during the last decade of the nineteenth century also aided the expansion of the commercial export orchard industry.[37]

Very little is known about the early history of Royal Orchard. Contained within the original Joseph Price patent of 1786, the lands containing what would become Royal Orchard straddled both Albemarle and Augusta counties. The property was conveyed from Jacob Coiner to Carter Newcomb and was ultimately purchased by Braxton Davis in the first half of the nineteenth century. In 1858 Braxton Davis conveyed "the land situated on the Blue Ridge north of Rockfish Gap partly in the County of Albemarle and somewhat the

[36] Henry M. Taylor. *The Apple and Peach Industries of Virginia.* Compiled jointly by the U. S. Department of Agriculture, Bureau of Agricultural Economics, and Virginia Department of Agriculture, Division of Agricultural Statistics and Division of Markets, 4-7. (Richmond: Davis Bottom, Supt. Of Public Printing, 1926).
[37] Peter J. Hatch. Newton Pippin: 'Prince of Apples.' *Twinleaf Journal*, January 1995. Electronic Resource: http://www.twinleaf.org/articles/pippin.html. (Charlottesville, Virginia: Thomas Jefferson Center for Historic Plants); Taylor, *Apple and Peach Industries*, 6.

greater part in the County of Augusta" to his son James B. Davis. James and his brother Robert C. Davis developed the orchard into a profitable commercial interest. The Davis family is believed to be the first to have developed an orchard on what is now Royal Orchard property. The property was first mentioned as Royal Orchard in 1868 and subsequent late nineteenth century deeds refer to the operation "known as Royal Orchard farm." It appears that Robert C. Davis convinced several University of Virginia faculty members, including John S. Davis, Frances H. Massie, and Charles S. Venable, to invest in the orchard. By 1880 the Davis' Royal Orchard farm operation was bankrupt and John G. Spotts, trustee for Bettie Spotts his wife, purchased the property. The Spotts' operation of Royal Orchard lasted only another two decades until it too went bankrupt. William D. Carlile purchased an option to buy the orchard property in 1899 and later went on to form a corporate holding company named the Royal Orchard Development Company. Royal Orchard was sold to the Scott family of Richmond in 1903. At the time of its sale in 1903 the Royal Orchard land contained approximately 40 acres of orchard.[38]

World War I to World War II (1917-1945)

Despite two world wars and a nation-wide depression, a significant amount of construction occurred in the vicinity of the Blue Ridge Tunnel project area during the first half of the twentieth century.

Eager to establish large national parks in the east, the National Park Service authorized the creation of Shenandoah National Park in 1926. Nine years later, the park was officially established. During the intervening years, privately held land was acquired through eminent domain, with many families forced to leave. The new park extended from Front Royal on the north to Waynesboro on the south with its southernmost tip at Jarman's Gap.

Running along the ridge top of the newly established Shenandoah National Park was Skyline Drive. Survey work for the road was begun in 1931. Landscaping and construction of the 105-mile road was accomplished through the Civilian Conservation Corps, a work-relief program established by president Franklin D. Roosevelt in 1933. Skyline Drive was opened to visitors in 1939. Between 1938-1939, the southern eight miles of roadway between Jarman's Gap and Rockfish Gap was built by the Blue Ridge Parkway, a road proposed by president Roosevelt to connect the Great Smokey Mountains with the Shenandoah National Park.[39]

Also during the mid-1930s U. S. Route 250, at the time the major east-west corridor through the Commonwealth of Virginia, was established. It utilized existing state and county owned roads and road corridors, some of which were established in the eighteenth and nineteenth centuries, and widened and improved them. In the project area vicinity, U. S. Route 250 paralleled the former turnpike road running in a southwest direction from Afton up the east face of the Blue Ridge Mountains, and then in a northern direction abandoning the old turnpike road route down the west face of the Blue Ridge Mountains towards Waynesboro. Both Skyline Drive and Route 250 crossed above the Blue Ridge Tunnel at

[38] Albemarle County Deed Book 42:116; 52:98; 58:65; 63: 584; 66:19; 71: 132; 76:391; 79:102; 113:358; 117:178, 180; Albemarle County Will Book 27:37; Frederick W. Scott. Royal Orchard, 1902-1978, p4, 19. (Verona: McClure Printing Co., 1979).

[39] The southern eight miles of Skyline Drive between Jarman's Gap and Rockfish Gap was deeded to the Shenandoah National Park in 1961.

Rockfish Gap (See Figures #17 and #18). With the completion of Route 250 and Skyline Drive and the consequent increase in automobile touring, a small development catering to tourists and including a motel and restaurant at Rockfish Gap was initiated.

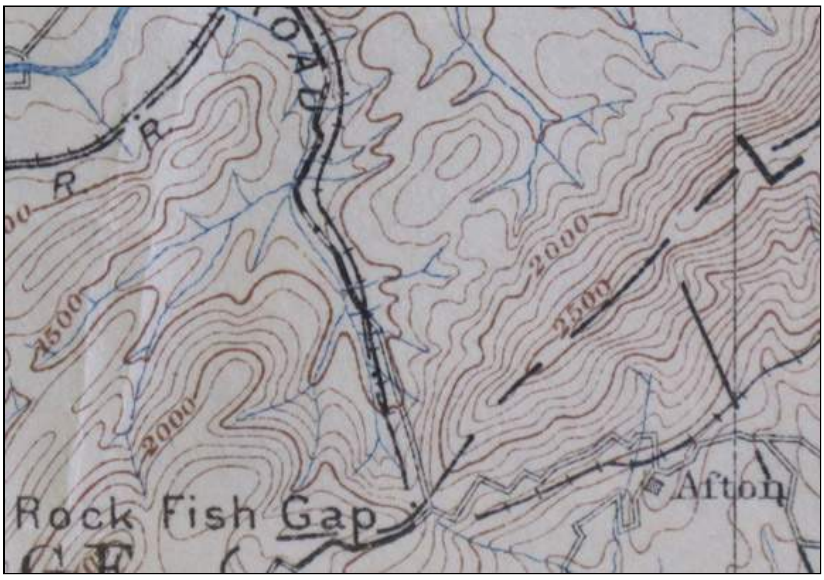

Figure #17: Detail, *Harrisonburg 30 Minute U.S.G.S. Quadrangle 1892, Reprint 1928*, showing nineteenth to early twentieth century alignment of turnpike road between Afton and Waynesboro.

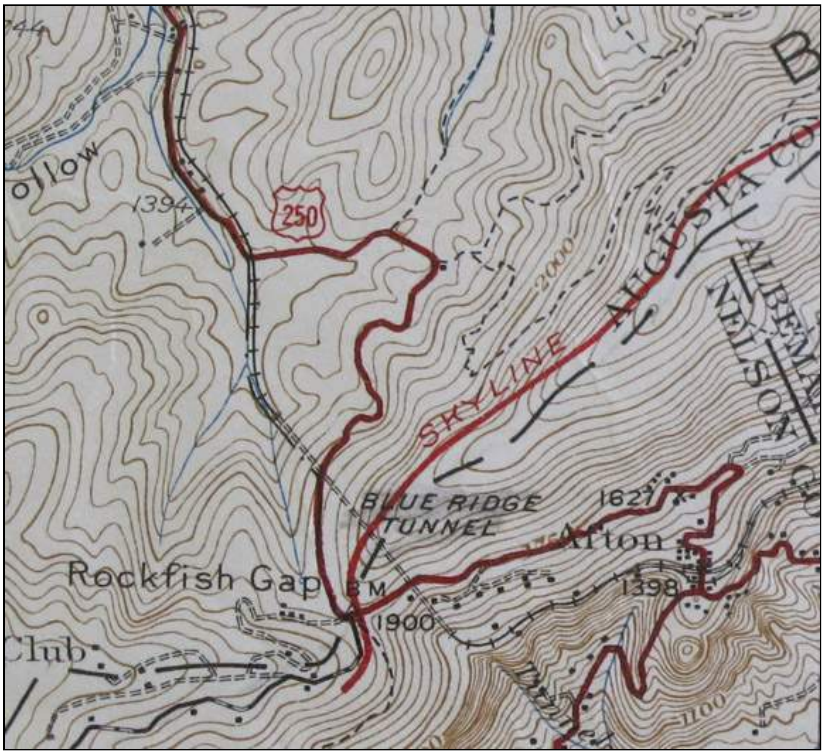

Figure #18: Detail, *Waynesboro 15 Minute U.S.G.S. Quadrangle 1939*, showing alignment of new Route 250 between Afton and Waynesboro.

During the early 1940s, the Chesapeake & Ohio railroad was planning the construction of a new tunnel through Rockfish Gap to accommodate the increased size of their engines and freight cars. Construction was begun in May of 1942 and by 1944 a new tunnel was completed south of and slightly lower than Crozet's Blue Ridge Tunnel. In the process of construction, the new tunnel destroyed a portion of the old bed and tracks adjacent to the east portal and demolished the watchman's house (See Figure #19).[40]

Figure #19: Modern (left) and historic (right) Blue Ridge Mountain tunnels at Rockfish Gap, HABS VA-63, Aft. V.2-1.

Figure #20: Detail, Aerial Photograph of Rockfish Gap, showing recently completed Interstate 64. #1974-51003-374-112, October 6, 1974.

[40] 'Eliminates Old Tunnels to Remove Restrictions to Traffic,' 143-146. *Railway Age*, Vol. 116, No. 2 (January 1944).

New Dominion (1945 – Present)

Although the population of the Commonwealth of Virginia made significant gains during the second half of the twentieth century, these gains only affected the project area indirectly. South of and adjacent to the Blue Ridge Tunnel Greenway, and located within Rockfish Gap proper, the private development continued to grow as the number of cars using Skyline Drive and Route 250 increased. The development of Rockfish Gap and its east and west flanks as a significant transportation corridor continued into the post-World War II period. By the early 1970s the construction of Interstate 64 through Rockfish Gap, improving interstate transportation, was completed (See Figure #20).

The Blue Ridge (Crozet) Tunnel

Blue Ridge Railroad

During the eighteenth and into the early nineteenth century, communication and commerce in Virginia was hindered by the poor condition of roads and the long distances traveled. In 1816 the Virginia General Assembly established the Board of Public Works and the Fund for Internal Improvement, a means through which the Commonwealth could encourage and invest in developing a state-wide public transportation network. Throughout its first two decades, the Board of Public Works focused on improving navigable waterways via a canal, lock and dam system, and also the construction and improvement of regional roads and turnpikes.[41]

With the completion of the Winchester Branch of the Baltimore and Ohio Railroad in 1836, Virginia merchants in eastern cities began to feel the loss of northern Shenandoah Valley agricultural products. In response many began to argue for the Board of Public Works to build more Virginia railroads to compete with the threat to regional commerce. As Chief Engineer of the Commonwealth during this period, Claudius Crozet also advocated the benefits of railroads over canals.

The coming of the railroad to central Virginia was enthusiastically supported on both sides of the Blue Ridge Mountains. In 1836 the Louisa Railroad was chartered. Although initially a small local railroad providing service between Hanover Junction (Doswell) and Louisa courthouse, it subsequently expanded westward to Gordonsville in 1840. Originally intended to connect to the Shenandoah Valley at Harrisonburg via Swift Run Gap, at Gordonsville the Louisa Railroad turned south and arrived in Charlottesville in 1850 and was renamed the Virginia Central Railroad. With the support of the Board of Public Works, it intended to surmount the Blue Ridge Mountains at Rockfish Gap, a route that Claudius Crozet had proposed a decade earlier.

To accomplish the task of crossing the Blue Ridge Mountains, the Board of Public Works created the Blue Ridge Railroad. Although not the earliest, the Blue Ridge Railroad was the first railroad to *begin* construction of a road crossing the Blue Ridge Mountains in 1849. Designed to connect Mechum's River in Albemarle County with Waynesboro in Augusta County, the 17-mile section contained four tunnels, one each at Greenwood, Brooksville, Little Rock, and Blue Ridge. Upon completion of a set of temporary non-ballasted tracks that skirted the unfinished portions of several tunnels in mid-1854, the new railroad line extended into Augusta County. With the completion of the nearly mile long Blue Ridge Tunnel in 1858, the permanent rail line connected the central Shenandoah Valley farming communities of Rockbridge, Augusta, and Rockingham, and areas of southwestern Virginia via Clifton Forge and Covington, to the eastern industrial centers such as the City of Richmond, and the ports of Alexandria and Norfolk.

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[41] John S. Salmon, *Introduction, Board of Public Works*, 1-4. Library of Virginia, Research Guides, n.d. Electronic Document: http://www.lva.virginia.gov/public/guides/bpw_intro.pdf; Marianne M. McKee, *The Internal Improvement Movement in Virginia. Early Canals, River Navigations, Roads, Turnpikes, Bridges and Railroads. Records and Resources at the Library of Virginia*, 1. Library of Virginia, Research Guides, 2003. Electronic Document: http://www.lva.virginia.gov/public/guides/Inter_Improvements.pdf.

By 1868 the Virginia Central Railroad joined the Covington and Ohio Railroad to form the Chesapeake and Ohio Railway. This new rail system extended into West Virginia to exploit the mineral and lumber industry, and in particular the New River coal mines. Throughout the late nineteenth and into the mid-1940s the Chesapeake and Ohio Railroad, via the Blue Ridge Tunnel, supplied the agricultural and raw material needs of Piedmont and Tidewater Virginia while at the same time providing an efficient means of sending goods to market for central Shenandoah Valley and adjacent Appalachian communities.

Claudius Crozet

Built by Claudius Crozet, the Chief Engineer of Virginia between 1823-1832 and 1837-1843, the Blue Ridge Tunnel is considered one of his crowning engineering achievements. Born in Villefranche, France in 1789, Benoit Claudius Crozet studied engineering in school before serving in the French military as a bridge builder. In 1816 he retired from the military and immigrated to the United States. Crozet was immediately appointed a professorship in engineering at West Point, the United States Military Academy.[42]

Claudius Crozet came to the Commonwealth of Virginia when he was appointed Principal Engineer and Surveyor for the Board of Public Works in 1823. Although he resigned from the Board of Public Works in 1832 and moved to Louisiana, Crozet returned to Virginia as Chief Engineer and Surveyor between 1837 and 1843. In 1839 Crozet was instrumental in founding the Virginia Military Institute in Lexington and served as the first president of the Board of Visitors between 1839–1845. Shortly after taking office as Chief Engineer, Crozet inspected the newly completed Staunton and James River turnpike running from Scottsville to Staunton via Rockfish Gap in 1826. Crozet cited many problems in the road's location, grade, and construction but also praised the importance of the turnpike claiming that it would greatly benefit commerce of the Shenandoah Valley and increase revenue of the James River navigation.[43]

During his tenure as the Chief Engineer of Virginia, Crozet approved, contributed to, and oversaw the design and construction of numerous transportation infrastructure projects including roads, canals and railroads. It is during the antebellum period in which the Board of Public Works was most active in encouraging and investing in internal improvement projects. Although much of his early work as Chief Engineer was focused on the construction of roads and canals, by the end of the third decade of the nineteenth century Crozet began to argue to the Virginia General Assembly the merits of a relatively new transportation technology, the railroad. Given the regional competition of the Baltimore and Ohio Railroad and the Erie Canal in shipping agricultural products and freight to eastern seaports, Virginia began to intensify its efforts to find a means of surpassing the Appalachian Mountains and linking with the Ohio River. While Crozet clearly outlined the

[42] Robert L. Barrett. Claudius Crozet, 18-19. *National Railway Bulletin*, Vol. 67, No. 5 (2002).
[43] Barrett, *Crozet*, 26; Board of Public Works, Commonwealth of Virginia. *Eleventh Annual Report of the Board of Public Works to the General Assembly of Virginia*, 87-89. (Richmond: Thomas Ritchie, 1827); Board of Public Works, Commonwealth of Virginia, *Twelfth Annual Report of the Board of Public Works to the General Assembly of Virginia*, 24-25, 87-89. (Richmond: Thomas Ritchie, 1828); Douglas Young, *A Brief History of the Staunton and James River Turnpike*, 3-4. VHTRC 75-R59. (Charlottesville: Virginia Highway & Transportation Research Council, 1975, Revised 2003).

benefits of the railroad in achieving this goal, stating that "canals have done their best; railroads, now at least equal to them, are still advancing toward perfection," the General Assembly ultimately directed an improvement and extension of the James River canal system. [44]

In 1849, Crozet was appointed the Chief Engineer of the Blue Ridge Railroad. During his second stint as Chief Engineer of Virginia Crozet had in fact made a preliminary survey for a railroad route across the Blue Ridge Mountains. These 1839 plans proposed a course through Rockfish Gap and traveling through Albemarle, Nelson and Augusta counties. The 17-mile section of the Blue Ridge Railroad, connecting Mechum's River in Albemarle with Waynesboro in Augusta, was completed and opened in 1858.

Because of the slow pace of progress tunneling through the Blue Ridge Mountains, citizens from the Shenandoah Valley lobbied for the construction of a temporary track over the mountain. In 1853 Charles Ellet, a nationally prominent engineer, was appointed Chief Engineer of the Virginia Central Railroad. Ellet organized the labor and completed the construction of a temporary track in less than a year. In early 1854, the first engine crossed the Blue Ridge Mountains. An 1856 image of Rockfish Gap by Edward Beyer clearly shows a train proceeding over the temporary track (See Figure #16).[45]

Other prominent projects Crozet contributed to included his appointment to the U. S. Army Corps of Engineers as Principal Assistant Superintendent of the Washington Aqueduct in late 1857. Crozet joined Montgomery C. Meigs in completing the aqueduct from the Potomac River's Great Falls to Washington, D. C. by 1859. Returning to Virginia in 1859 Crozet was appointed Chief Engineer of the Virginia and Kentucky Railroad. Work was ultimately suspended on this project due to the Civil War. Claudius Crozet died in 1864 at the age of 74 and was buried in Richmond, Virginia. In 1942 Crozet's remains were moved to the Virginia Military Institute in Lexington, Virginia.[46]

Design, Engineering and Construction

The Blue Ridge Tunnel is considered to be significant for its engineering, design and construction techniques. The Blue Ridge Tunnel was the westernmost and longest of four tunnels built to allow the Blue Ridge Railroad to pass through Rockfish Gap in the Blue Ridge Mountains. As designed by Crozet, the tunnel was to be a 4,273 foot long straight line containing only a single track. Abandoning the more common semicircular tunnel shape, Crozet opted for a much stronger elliptical shape. The dimensions of the tunnel were to be 16 feet wide and 20 feet high above the rails. The bed was to have a grade of 1.3 percent rising from east to west. The western end of the tunnel was approximately 56 feet

[44] Barrett, *Crozet*, 23, 25.
[45] Charles Ellet, Jr., C.E., The Mountain Top Track. A Description of the Railroad Across the Blue Ridge at Rockfish Gap in the State of Virginia. (Philadelphia: T.K. & P. G. Collins, 1856); Charles Ellet Jr., C.E., Railroad Across the Blue Ridge Mountains, Virginia, U.S., 190-191. *The Civil Engineer and Architect's Journal*, Vol. 20 (1857).
[46] Barrett, *Crozet*, 30-31.

higher than the eastern end. The tunnel passed approximately 700 feet below the apex of the mountain.[47]

Work was begun on the tunnel in the summer of 1849 with Crozet and his team of surveyors laying out the final route for the tunnel and its approaches. Crozet began excavation of the tunnel at both the east and west headings of the tunnel simultaneously, with a goal of meeting in the middle. This method of simultaneous headings from both the east and west ends was risky and controversial and contradicted the more commonly pursued method of excavation at one heading only. Excavation throughout the length of tunnel was performed using manual drilling and black powder blasting, considered state of the art for the period. Use of a heading and bench method of excavation allowed the entire height of the tunnel to be excavated simultaneously. Work was exclusively manual and included drilling, blasting, picking, loading, hauling, and leveling the floor and trimming the sides of the tunnel. In addition, stone was quarried for construction of masonry at the portals and carpenters and masons were kept busy constructing timber shoring and brick arching. Although the size of the labor force was small initially, Crozet and his contractors moved to a three 8-hour shift employing between 200 – 300 individuals at any one time.[48]

Crozet encountered many problems during construction. While the rock excavated from the eastern heading was predominantly hard and needed no lining, rock from the western heading was particularly soft and subject to falling and collapse. The situation was dire enough that labor refused to work in the western end of the tunnel. Crozet's solution was to construct a substantial timber frame where required. As excavation advanced, this was replaced by a thick brick lining. The brick lining was non-uniform in thickness and conformed to the shape of the underlying rock. Weep holes, areas where water seeping from the natural stone could be properly drained, were purposefully constructed at the base of the brick lining by Crozet as needed. Although the eastern portal was composed only of natural rock, the western portal was faced with cut stone quarried from the Valley. According on an 1858 inspection report, upon completion of the tunnel 797 feet or 18.6% of its entire length had been arched in three separate segments. Beginning at the east portal was a 2,792 foot un-arched section, followed by a 272 foot arched section, followed by a 20 foot un-arched section, followed by a 42 foot arch section, followed by a 672 foot un-arched, followed by a 483 foot arched section to west portal.[49]

The removal of water from the tunnel, particularly at the west heading where gravity naturally led water to pool at the face of excavations, was an ongoing concern. Initially Crozet installed mule powered mechanical pumps that removed most of the constantly seeping water. By 1853 however excavation at the west heading had encountered strong springs of water that made work at the rock face impossible. To solve the problem Crozet designed an 1,800 foot long 3 1/8 inch diameter siphon to assist in removal of excess water,

[47] Col. William Couper, *Claudius Crozet: Soldier-Scholar-Educator-Engineer, 1789-1864*, 130. (Charlottesville: The Historical Publishing Co., Inc., 1936); Robert F. Hunter and Edwin L. Dooley, Jr., *Claudius Crozet: French Engineer in America, 1790-1864*, 141. (Charlottesville: University Press of Virginia, 1989).
[48] Hunter and Dooley, *Crozet*, 141, 145; Couper, *Crozet*, 134.
[49] Hunter and Dooley, *Crozet*, 144, 163; Couper, *Crozet*, 149.

an apparatus he claimed to be the longest siphon on record. The siphon discharged approximately 60 gallons per minute but required constant monitoring. [50]

As excavation proceeded deeper into the tunnel ventilation of the noxious fumes generated by the use of black powder blasting became necessary. The extreme depth of the tunnel below the mountain top made traditional ventilation techniques, excavation and drilling of vertical shafts at regular intervals, impractical. Crozet opted instead for the construction of several ventilation machines following the specifications noted in Sir John Burgoyne's *A Rudimentary Treatise on Blasting and Quarrying* (1849). Waynesboro mechanic William Crouse constructed several of Burgoyne's ventilators for Crozet. The ventilators, self contained tubs that used water to force noxious air through a pipe and thereby drawing fresh air into an enclosed space, were powered by mules on a treadmill. [51]

Despite extended delays caused by labor, unstable rock, and the need for constant ventilation and pumping of water, on December 25, 1856 excavators 'holed through,' reportedly only 6 inches off in their alignment.[52] Over the next year and a half the grade of the tunnel was set, tracks were laid, and portions of the tunnel were arched with brick. On April 12, 1858 the Blue Ridge Tunnel and its 17-mile long section of line was largely completed and the first train passed through on its tracks. Until the end of 1859, brick arching at the western end of the tunnel continued in places. Aquila Peyton visited the 'Great Tunnel' in October of 1859 and provided a description of the ongoing work.

> We approached the eastern mouth on a high embankment composed entirely of fragments of flinty stone blasted out of the tunnel. …No one I think could fail to admire the tunnel as he enters it, the flinty wall streaming with cool clear water. It is full of grandeur and elegance, and strikes the beholder as the result of Herculean efforts and indefatigable toil. …We walked along in admiration and delight. …Far before us we could see the lights of the blasters, and hear the roar of the hand cars. When we got up to the stage our ears were saluted by the sharp din and clank of the drills. On each side were several workmen at cliff heights with small lamps, perforating the walls with drill. A hand car plying between them and a forge further on carried the drills to the smiths. This forge had a very dismal appearance. Part of the tunnel has been arched with brick and this arching is not yet finished. We crawled out at the western mouth under a huge curtain.[53]

Crozet encountered additional problems outside of the tunnel but adjacent to the each portal. In order to provide an adequate turning radius for trains to enter the tunnel, Crozet was required to construct a substantial fill embankment adjacent to the east portal of the tunnel where there was an extremely steep slope and several ravines. Using rock excavated

[50] Claudius Crozet to the Board of Public Works, August 2, 1853. Electronic document: http://railroads.unl.edu/documents/search.php?yearStart=&yearStop=&keyword=Crozet&publication=; Hunter and Dooley, *Crozet*, 150; Couper, *Crozet*, 139.
[51] Claudius Crozet to the Board of Public Works, August 2, 1853. Electronic document: http://railroads.unl.edu/documents/search.php?yearStart=&yearStop=&keyword=Crozet&publication=; Hunter and Dooley, *Crozet*, 148-149; Couper, *Crozet*, 140.
[52] Hunter and Dooley, *Crozet*, 158; Couper, *Crozet*, 161.
[53] Aquila Johnson Peyton. *Diary of Aquila Johnson Peyton, 1859-1861*, 113-115. MSS 4412. Special Collections Department, University of Virginia, Charlottesville, Virginia.

from the tunnel and elsewhere along the line, a 270 foot long and 135 foot high embankment was constructed. The embankment was later reinforced in the late 1850s. At the western portal the route of the railroad line interfered with the pre-existing James River and Staunton Turnpike. As a result Crozet was required "to turn the turnpike in two places: near the deep cut [at the western portal], out of its reach and below the cut, at a point where the embankment has gained elevation enough to pass over it; we had likewise to divert the course of the creek which occupied the bottom of the valley, to save the cost and maintenance of two bridges or culverts."[54]

At the time of its completion in 1858, it was the longest railroad tunnel in the world. During the same year, the Board of Public Works turned over the operation and maintenance of the 17-mile long Blue Ridge Railroad to the Virginia Central Railroad.

Crozet's Blue Ridge Tunnel remained in active use until 1944, when the Chesapeake & Ohio Railway completed construction of a newer tunnel, adjacent to but south of and slightly below the old one, to allow room for more modern engines and railroad cars. In 1976, the American Society of Civil Engineers designated Crozet's Blue Ridge Tunnel a Historic Civil Engineering Landmark. The society noted that the tunnel "represents the culmination of civil engineering technology based on manual drilling methods."[55]

The Laborers

The 17 miles of track and four tunnels composing the Blue Ridge Railroad, designed by Claudius Crozet to surmount the Blue Ridge Mountains, were constructed over a period of eight years by free Irish American labor, and enslaved African American labor.

The contract for the construction of the Blue Ridge Railroad was let to several individual contractors. Section 1, the contract for the excavation and construction of the Blue Ridge Tunnel was awarded to John Kelly and John Laraguay. While each contractor had their own preference, records document that at least initially Kelly and Laraguay turned to the procurement of free labor to construct the tunnel, predominantly recent Irish immigrants to Virginia from Clare, Cork, Kerry and Limerick counties.[56]

To date, research has documented that at least 1,900 Irish Americans helped to build the Blue Ridge Railroad. Although a good number of Irish laborers worked for many years on the project, Crozet's correspondence and payroll records document that many were also a mobile labor force, often seeking safer working conditions and better wages elsewhere than was offered through the Board of Public Works. Irish laborers also conducted several strikes throughout their tenure on the railroad, the longest one occurring in the spring and summer of 1853, effectively temporarily suspending work in the Blue Ridge Tunnel.[57]

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[54] Claudius Crozet to the Board of Public Works, May 6, 1850. Electronic Document: http://railroads.unl.edu/documents/search.php?yearStart=&yearStop=&keyword=Crozet&publication=; Hunter and Dooley, *Crozet*, 141-142; Couper, *Crozet*, 167.

[55] Anonymous, Eliminates Old Tunnels to Remove Restrictions to Traffic, 143-146. *Railway Age*, Vol. 16, No. 2 (1944); *Blue Ridge Tunnel*. Historic American Engineering Record, HAER VA-2, post-1968.

[56] Hunter and Dooley, *Crozet*, 143-144, 147; Couper, *Crozet*, 132.

[57] Claudius Crozet to the Board of Public Works, August 2, 1853, Electronic document: http://railroads.unl.edu/documents/search.php?yearStart=&yearStop=&keyword=Crozet&publication=; Hunter and Dooley, *Crozet*,

Excavation of the tunnel and construction of the rail line was an exclusively manual process in 1850. In a May of 1850 letter to the Board of Public Works, Crozet reported that Kelly and Laraguay employed 4 foremen, 25 drillers, 28 quarry men, 14 pick-holders, 4 smiths, 2 carpenters, and 7 drivers totaling 84 men at the Blue Ridge Tunnel. In addition the contractors also employed "7 horses and carts and some wheelbarrows." Irish American labor performed both skilled and unskilled labor including drilling holes, blasting with black powder, loading stone rubble, hauling away stone rubble, pumping water, driving mules and carts, picking stone, quarrying stone, constructing timber supports, constructing brick and stone masonry lining, in addition to general blacksmithing.[58]

Tunnel work was extremely dangerous especially at the western heading where softer rock meant frequent collapse of the ceiling. During the excavation of a particularly unstable 200-foot section, Irish workers refused to work until adequate timber cribbing was constructed. In addition to falling rock, laborers had to work in damp and poorly ventilated areas. Many laborers died on the job from falling rock, explosions, collapse of earth, and track accidents.[59]

Most Irish laborers lived close to their location of work. Those that worked within the eastern and western headings of the main tunnel also likely resided near these locations. Non-Irish observers called these residences shanties, and concentrations of Irish residences were called shantytowns. Although few descriptions of the shanties have survived, they were likely constructed of local natural materials including wood and stone. Gardens too were planted in small woodland clearings. Visiting the Blue Ridge Tunnel in the summer of 1851, Mary Jane Boggs Holladay described the living conditions of the Irish laborers.

> One of the poor men who work on the railroad had made a clearing among the trees in order to plant his potatoes. There are a great many Irish cabins on each side of the mountains which reminded me of descriptions I have read of the manner of living of the lowest class in Ireland. They are mere hovels, and most of them have one or two barrels on the top of the chimney, but in some of them we saw muslin curtains, a strange mixture of dirt and finery. The people are real Irish – wretched, miserable and dirty in appearance, but they hold on to Irish fun and Irish potatoes, as well as Irish tempers. Father called to the man who was at the door of one of the cabins and told him he had often seen double barreled guns but had never before heard of double-barreled chinnies and he seemed very much pleased (sic). [60]

147, 154-155; Couper, *Crozet*, 150, 168; Clann Mhor, *Blue Ridge Railroad Project*. Electronic Document: http://clannmhor.blogspot.com/2010/02/clann-mhor-means-great-family-in-irish.html.

[58] Claudius Crozet to the President and Directors of the Blue Ridge Railroad Co., May 6, 1850. Electronic document: http://railroads.unl.edu/documents/search.php?yearStart=&yearStop=&keyword=Crozet&publication=.

[59] Claudius Crozet to the Board of Public Works, December 6, 1853 and Claudius Crozet, Report to the Board of Public Works, January 4, 1854. Electronic Document: http://railroads.unl.edu/documents/search.php?yearStart=&yearStop=&keyword=Crozet&publication=; Hunter and Dooley, *Crozet*, 143; Couper, *Crozet*, 135-136, 149.

[60] Mary Jane Boggs Holladay. *The Journals of Mary Jane Boggs Holladay, 1851-1961.* (Charlottesville, 1970).

Living in concentrated conditions on a mountainside or in crowded boarding houses generally meant less sanitary conditions. Cholera hit the shantytowns in late summer of 1854. Several deaths occurred in shantytowns on both the east and west sides of the tunnel and as a result work was stopped for several weeks until the sickness had passed.[61]

> Cholera at the Tunnel – The disease is confined to the six or eight shanties situated on the ravine running from near the top of the mountain at Rockfish Gap to the eastern mouth of the tunnel, a distance of sixty to a hundred yards, and is hence attributed to some local cause. Two persons from the infected district brought the disease to the west side of the mountain.[62]

Although Irish laborers generally resided near their place of occupation, they did not stay there. Mid-century accounts in local newspapers report that the Irish frequently went into town in neighboring Augusta County to purchase goods, attend church, and vote. Many Irish laborers were buried in the Thornrose cemetery in Staunton and in smaller private cemeteries in Albemarle County.[63]

Following a problematic and extended free labor strike during 1853, Crozet appealed to the Board of Public Works who approved the hiring of 40 to 50 slaves for the year 1854 'to be employed at work on Blue Ridge Railroad and Tunnel, from labor agents George A. Farrow and David Hansbrough. While the contract specifically stated that the slaves were not to be employed in 'loading or blasting on said work,' the new enslaved laborers were ultimately integrated with the predominant white free labor force. Although Crozet recognized the limitations proscribed by larger white society in prohibiting the mixing of the races, he arrived at a trial solution for 1854 placing approximately 50 enslaved African Americans in the tunnel in work 'distinct from that of the Irish hands, ' including pump work, thereby simultaneously enabling him to employ free Irish labor 'at the drills.' By the end of the year and with the easing of hiring cheap free labor, the Board of Public Works withdrew its support of the labor experiment in the tunnel and Crozet admitted that 'under present circumstances, it was not advisable to mix again white and black labor in the tunnel.' The enslaved African Americans were put to work preparing ballasting and laying track.[64]

Associated Structures

Upon the opening of the Blue Ridge Railroad for active use in the spring of 1858, the Virginia Central Railroad required the presence of a tunnel watchman. The watchman was responsible for keeping the tunnels clear of obstructions, coordinating passage through the tunnel by trains, and for warning the trains in cases of emergency. The Virginia Central Railroad hired David L. Sheeler as the first tunnel watchman shortly after completion of all

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[61] Claudius Crozet to the Board of Public Works, September 1, 1854. Electronic Document: http://railroads. unl.edu/ documents/search.php?yearStart=&yearStop=&keyword=Crozet&publication=; Hunter and Dooley, *Crozet*, 156-157.

[62] *The Staunton Spectator* (Staunton, Virginia), August 2, 1854, p2.

[63] Clan Mhor, *Blue Ridge Railroad Project*, personal communication.

[64] Claudius Crozet to the Board of Public Works, December 6, 1853; Claudius Crozet, Report to the Board of Public Work, January 4, 1854; Claudius Crozet to the Board of Public Works, November 5, 1854; Claudius Crozet to the Board of Public Works, December 1, 1854; Claudius Crozet to the Board of Public Works, December 28, 1854. Electronic Document: http://railroads.unl.edu/documents/search.php?yearStart=&year Stop=&keyword=Crozet&publication=; Hunter and Dooley, *Crozet*, 156-157.

construction. The Sheelers, David and Susan and their children, lived in a small house at the entrance to the eastern end of the Blue Ridge Tunnel.[65]

Figure #21: East Portal of the Blue Ridge Tunnel, showing Sheeler frame residence at left, stone retaining wall above portal, and three figures at entrance. James Poyntz Nelson, ca. 1917.

Two photographs of the Sheeler residence document that it was a modest frame structure located on the south side of the Virginia Central Railroad tracks just outside the east portal to the Blue Ridge Tunnel. A Sheeler family history notes that the structure was a four room house and that a kitchen and dining room were built on at an unknown date.[66] Figure #21, taken sometime prior to 1917, shows one side of the watchman's residence as a clapboard sided structure with a single window on the left side of the photograph with the east portal of the tunnel in the background (See Figure #21). Figure #22, taken at an unknown date during the nineteenth century, shows nearly the entire Sheeler residence. The building is a 1 ½ story frame structure with a small porch and fenced yard facing south-southeast. The residence appears to be backed right up to the adjacent bedrock on the south side of the east portal. Several figures, men and women, are pictured perched on the rocks on either side of the east portal entrance to the tunnel (See Figure #22).

It is not clear if the watchman's house was built by the Virginia Central Railroad, by Sheeler, or if it was built for some other purpose sometime during the eight year period in which the tunnel itself was constructed. On his visit to the site in October of 1859, Aquila Peyton described the structure. "A small house is at the [east] entrance, inhabited by the superintendent." This brief description, before the arrival of the Sheelers, appears to suggest

[65] Gladys Wiltshire. *The History of the Sheeler Family*. Ms. in possession of author, n.d.
[66] Wiltshire. *Sheeler Family*, n.d.

that the structure may have been built by the Blue Ridge Railroad and used off and on by the contractors.[67]

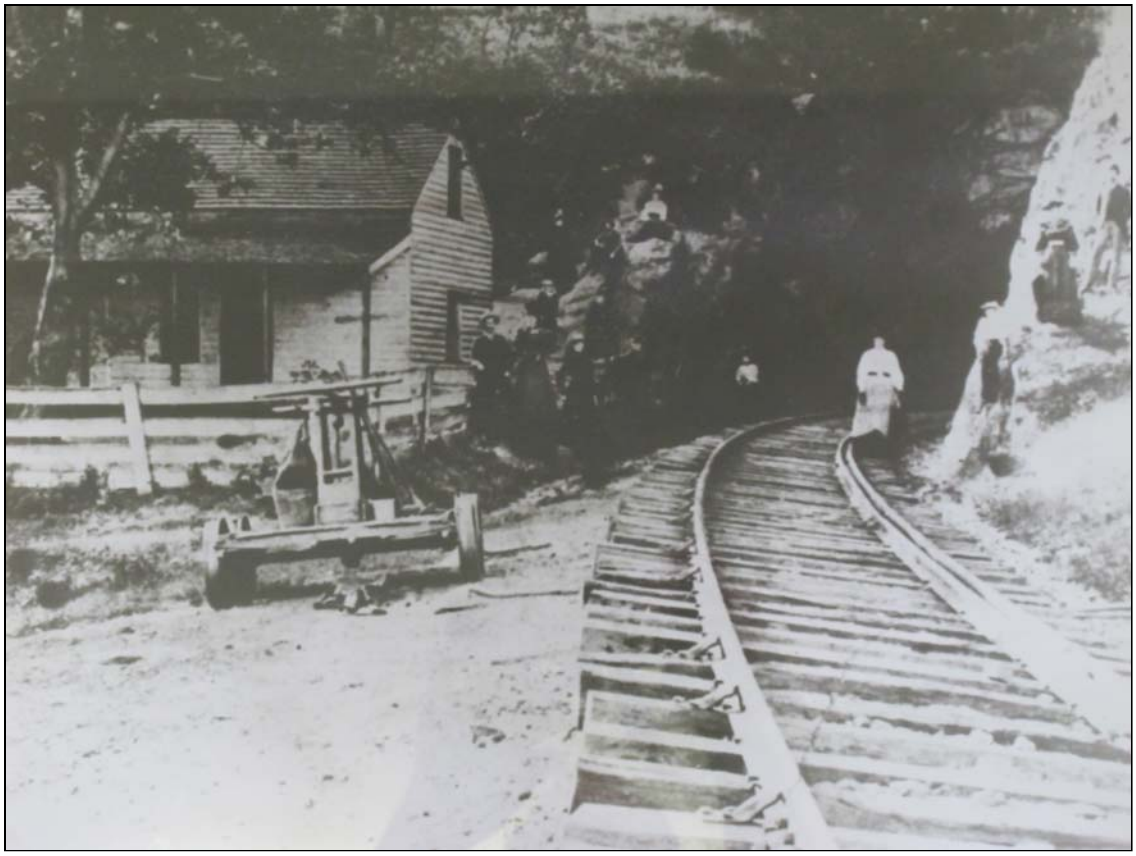

Figure #22: Photograph showing the frame Sheeler residence and east portal to Blue Ridge Tunnel, n.d. Courtesy of Bruce Tyler, Afton, Virginia.

Post-1858 Tunnel Maintenance and Repair

A decade after the end of the Civil War, the Chesapeake and Ohio Railroad had a total of 26 tunnels along its lines. Tunnels were an efficient means of surmounting steep grades, avoiding tight turns, and frequently saved on construction costs. However tunnels also required regular inspection and maintenance. The long-term stability of the natural rock and any wood, or masonry lining needed to be monitored and repaired over time. The Blue Ridge Tunnel was no exception. Evidence suggests that the brick masonry lining in the Blue Ridge Tunnel was expanded during the Virginia Central Railroad and Chesapeake & Ohio Railroad tenures. [68]

According on an early 1858 inspection report, upon completion of the Blue Ridge Tunnel, 797 feet or 18.6% of its entire length had been arched in three separate segments. Beginning at the east portal was a 2,792 foot un-arched section, followed by a 272 foot arched section, followed by a 20 foot un-arched section, followed by a 42 foot arch section, followed by a

[67] Aquila Johnson Peyton. *Diary*.
[68] Henry S. Drinker. *Tunneling, Explosive Compounds and Rock Drills*, 483. (New York: John Wiley and Sons, 1878).

672 foot un-arched, followed by a 483 foot arched section to west portal.[69] Clearly however the construction of brick arching in the western end continued after the 1858 inspection. In his visit to the tunnel in late 1859, Aquila Peyton noted that construction of brick lining was ongoing.[70]

A 1917 publication on the four tunnels of the Blue Ridge Railroad noted that 1,479 feet was brick lined. In 1944 an article reporting on the construction of the new Chesapeake & Ohio tunnel at Rockfish Gap, it was noted that the old tunnel possessed 1,458 feet of brick lining at the west end, a nearly doubling of the linear feet of arching as reported in 1858.[71]

Two tunnel inspection reports generated in 2006 and 2009 noted sections of tunnel liner where brick had fallen out that was patched with concrete. The areas of large concrete patching documents that minimal maintenance was conducted on the tunnel during its nearly 100-year use.[72]

The Bottled Gas Corporation

Shortly after its abandonment in 1944, the Chesapeake and Ohio Railroad leased the Blue Ridge Tunnel to the Bottled Gas Corporation of Richmond. Two concrete seals or bulkheads were constructed inside the tunnel in the mid-1950s. The eastern bulkhead, located at station 7+62 is an approximately 11 foot 4 inch thick concrete wall extending across the entire tunnel at this point. The western bulkhead is located at station 24+-2 and is approximately 12 feet thick concrete wall also extending across the entire tunnel. Construction of the concrete bulkheads was facilitated through the drilling and blasting of a slot into the base, sides and top of the natural rock. The concrete was then constructed into the slot so that a tight seal could be achieved. The interior face of each concrete bulkhead is lined with cut steel plating. Epoxy fills the seams between the steel plates and also surrounds the interface between the concrete bulkheads and the tunnel rock. A 27-iunch diameter metal pipe to allow human access through each wall is located approximately 2.5 feet off the ground. Several additional small bore pipes, of unknown purpose, are placed through the concrete bulkheads at their top. Modern gravel identified in areas on the floor of the tunnel adjacent to the western bulkhead suggest that some base fill may have been brought in to facilitate access and egress of machinery during construction.

[69] Hunter and Dooley, *Crozet*, 163.
[70] Aquila Johnson Peyton. *Diary*.
[71] James Poyntz Nelson, *Four Tunnels in the Blue Ridge Region of Virginia on the Chesapeake and Ohio Railway*, 5. (Richmond: Mitchell and Hotchkiss); Anonymous, Eliminates Old Tunnels, 143-144.
[72] Gary K. Rogers, *Preliminary Stability Assessment for Claudius Crozet's Blue Ridge Tunnel,* 103-122. Prepared for The Whitesell Group, Roanoke, Virginia. (Lexington, Virginia. Gary K. Rogers, 2006); Jacobs Associates, *Blue Ridge (Crozet) Tunnel Rehabilitation, Tunnel Inspection Report [DRAFT]*, 7-8. Prepared for Woolpert, Inc., Portsmouth, Virginia. (Seattle: Jacobs Associates, 2009).

5 Previous Research

Archaeological and architectural site files maintained by the Department of Historic Resources in Richmond contain one archaeological resource and six architectural resources that intersect with or cross through the Blue Ridge Tunnel Greenway project area. A total of 12 additional architectural resources and historic districts have been identified within a one mile radius of the project area (See Tables 2 and 3).

Table 2: List of identified archaeological sites within and adjacent to the Blue Ridge Tunnel project area.

DHR ID#	Resource Name	Temporal Designation	Setting	Thematic Context
44PA0277	Skyline Drive	1931	Upland	Recreation-Park, Transportation-Road

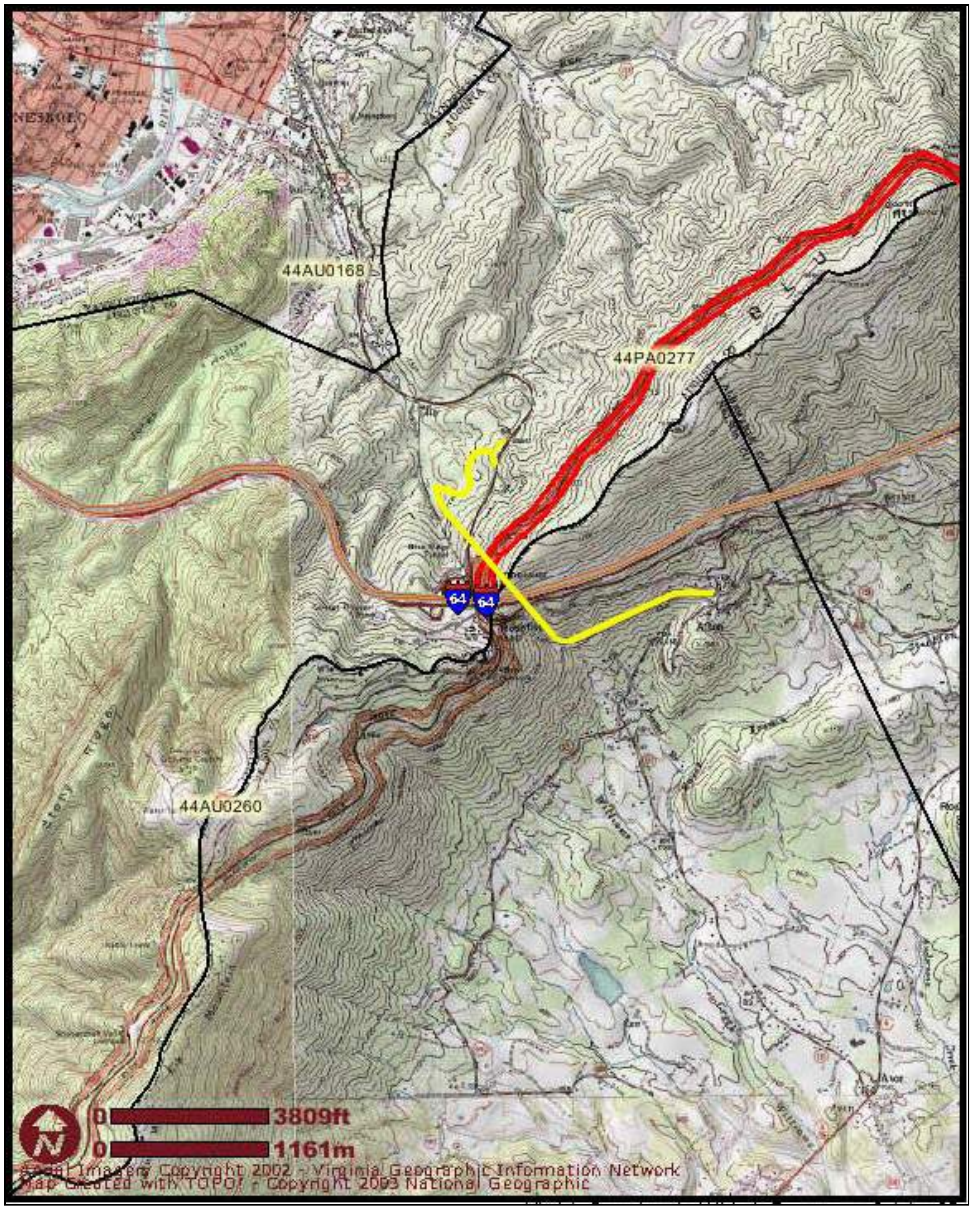

Figure #23: Map showing Blue Ridge Tunnel Greenway project area (shaded in yellow) and intersecting and adjacent archaeological resources (shaded in red).

Table 3: List of identified architectural resources within and adjacent to the Blue Ridge Tunnel project area.

DHR ID#	Date	Property Name	Property Type
002-0376	Ca. 1910	Waynesboro Nurseries Stone Building, 9546 Old Turnpike Road	House
002-0397	Ca. 1883	McCue Place/Afton Farm, 9194 Old Turnpike Road	House
002-0400	Ca. 1900	Log House, Rt. 750, 80 Still Meadow Ln	House
002-1828	1939	C&O Bridge #2059, Route 250	Bridge
002-5075	Ca. 1750	Greenwood-Afton Rural Historic District	Resid./Agric.
007-0036	Ca. 1700	Mountain Top Inn	Hotel Resort
007-1259	n.d. given	Bridge #1026, Route 250	Bridge
062-0022	1912	Swannanoa	House
062-0058	n.d. given	McCue House	House
062-5009	Ca. 1870	Bennie Haven House, 3240 Afton Mtn Rd	House
062-5076	Ca. 1870	George Haven House, 3224-3252 Afton Mtn Rd	House
062-5105	Ca. 1850	Blue Ridge (Crozet) Tunnel, Rockfish Gap	Tunnel
062-5116	Ca. 1940	Springhouse, Rte. 6	Springhouse
062-5122	Ca. 1940	Blue Ridge Terrace Inn, 10065-10039 Rockfish Gap Tpke	Apartments
069-0234	1931	Skyline Drive Historic District	Road
080-5161	Ca. 1935	Blue Ridge Parkway Historic District	Road
093-5043	Ca. 1928	Appalachian Trail, Shenandoah National Park	Trail
136-5057	1865	Waynesboro Battlefield (Core and Study Area)	Battlefield

Only one archaeological resource was identified as lying within the Blue Ridge Tunnel Greenway project area. Skyline Drive (44PA0277), a 105-mile road corridor, overlies and intersects the center of the Blue Ridge Tunnel proper at Rockfish Gap (See Figure #23). Skyline Drive is considered nationally significant under the National Historic Landmark theme transforming the environment.

The Blue Ridge Tunnel Greenway project area also contains six architectural resources, five of which are historic districts. The *Greenwood-Afton Rural Historic District* (002-5075), a 14,000 acre area predominantly in Albemarle but also in Nelson and Augusta counties, overlies the eastern part of the Blue Ridge Tunnel project area between Afton, Virginia and the western portal of the tunnel. The district contains several intact estates as well as properties associated with important architects and landscape designers, and also includes the Blue Ridge Tunnel and its associated road bed as a contributing resource. The district may be eligible for National Register listing under criteria A and C and is significant in the areas of agriculture, architecture, landscape architecture and transportation. *The Skyline Drive Historic District* (069-0234) overlies and intersects the center of the Blue Ridge Tunnel proper at Rockfish Gap and is a 105 mile road corridor, 75 miles of which lie in Virginia, that runs along the ridge of the Blue Ridge Mountains between Front Royal, Virginia and Rockfish Gap. Skyline Drive is significant for its role in the development of national park planning and road design, federal policy in conservation and recreation, and the economic relief programs of the New Deal. Skyline Drive is also significant for its central role in the creation of a large national park in the eastern United States. The Skyline Drive Historic District was listed as a Virginia Historic Landmark in 1996, and on the National Register in 1997. *The Blue Ridge Parkway Historic District* (080-5161) overlies and intersects the center of the Blue Ridge Tunnel proper at Rockfish Gap and is a 469 mile

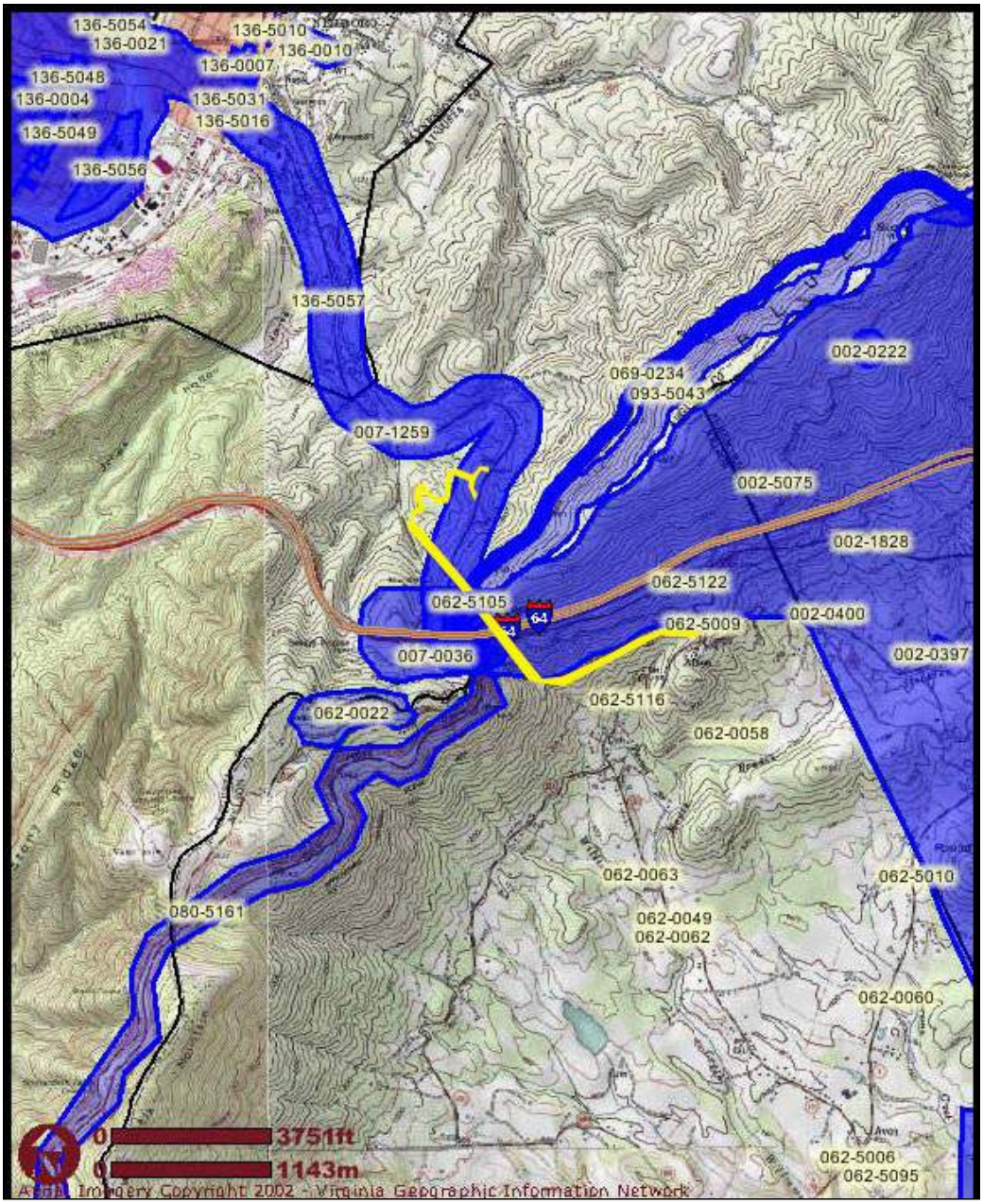

Figure #24: Map showing Blue Ridge Tunnel Greenway project area (shaded in yellow) and intersecting and adjacent architectural resources (shaded in blue).

road corridor, 217 miles of which lie in Virginia, that runs along the ridge of the Blue Ridge Mountains between North Carolina and Rockfish Gap. Designed to connect the Great Smoky Mountains National Park in North Carolina and Tennessee with Shenandoah National Park in Virginia, the Blue Ridge Parkway is significant for its designed and engineered landscape, for its association with federal policy in conservation and recreation, and for its association with the economic relief programs of the New Deal. The Blue Ridge Parkway Historic District may be eligible for listing on the National Register under criteria A and C in the areas of community planning and development, recreation, landscape architecture and highway construction, and criterion B due to its association with significant individuals. *The Appalachian Trial Historic District* (093-5043) overlies and intersects the center of the Blue Ridge Tunnel proper at Rockfish Gap and is a 2,175 mile pedestrian trail,

104 miles that lie within Shenandoah National Park, extending from Maine to Georgia. The Appalachian Trail is significant for its association with the early twentieth century movement to establish a national park on the east coast, for its association with efforts to conserve natural features and scenic areas as parks, and for its trail design and method of construction. The Appalachian Trail Historic District may be eligible for listing on the National Register under criteria A and C in the areas of landscape architecture, architecture, community planning and development, politics/government, and entertainment/recreation (See Figure #24).

The Blue Ridge Tunnel project area also encompasses the Blue Ridge (Crozet) Tunnel (062-5105) an individually listed property, in its entirety. The Blue Ridge Tunnel was the longest of four tunnels designed by Claudius Crozet and constructed by the Blue Ridge Railroad to cross the Blue Ridge Mountains. Constructed by a predominantly Irish American labor force between 1849 – 1859, the Blue Ridge Tunnel was built using exclusively manual technology, and at the time of completion was the longest tunnel in the world at 4,273 feet. The Blue Ridge Tunnel may be eligible for listing on the National Register under criteria A, B and C in the areas of transportation, design and construction, and because of its association with Claudius Crozet (See Figure #24).

As currently mapped, the *Waynesboro Battlefield Historic District* (007-1259) also overlies and intersects the center of the Blue Ridge Tunnel proper at Rockfish Gap. The Waynesboro Battlefield Historic District is composed of a core area centered on downtown Waynesboro, and a study area consisting of a linear corridor extending from Fishersville west of Waynesboro, to Rockfish Gap east of Waynesboro. The course of the study area corridor generally follows modern Route 250. The American Battlefield Protection Program determined, and the Virginia Department of Historic Resources concurred, that the battlefield was not eligible for listing on the National Register due to the compromised integrity of the core and study areas (See Figure #24).[73]

A total of 12 additional architectural resources were identified within one mile of the Blue Ridge Tunnel project area. Of the 12 total properties 8 or 66% are houses, apartments or residential structures, with 2 bridges, 1 hotel, and 1 springhouse (See Table #3).

A reconnaissance level pedestrian survey of the then proposed Blue Ridge Tunnel Greenway[74] was conducted by Rivanna Archaeological Services in 2005-2006 (See Ford 2006). The survey located a total of 14 previously unidentified historic resources, 9 on the eastern side, and 5 on the western side. Of the total 14 sites, 5 or 35% were potential domestic residential sites; 3 or 21% were stone walls or stone alignments most likely related to the construction and operation of the Blue Ridge Railroad; 2 or 14% were burials/cemeteries dating from the late nineteenth to the first half of the twentieth century;

[73] The present course of Route 250 between Waynesboro and Rockfish Gap, beginning about half way up the west slope of the Blue Ridge Mountains at the Waynesboro City limits, was built during the early 1930s, and could therefore not have been the route taken by Gen. Philip Sheridan's advancing federal troops in March of 1865. The historic route abandoned in the 1930s after the completion of Route 250, and the route most likely taken by Gen. Sheridan, followed the current course of the C&O / CSX railroad line.

[74] The Blue Ridge Tunnel Greenway project, as then proposed by the Whitesell Group, possessed a slightly different route for the western trail and also contained a pedestrian connection from Route 250 on the east side to the eastern portal of the Blue Ridge Tunnel.

one was a stone culvert underlying the historic Blue Ridge Railroad bed; one was a stone-lined spring; one was an historic road corridor; and one was a railroad related structure, 'the dynamite shack.' Associated historic map research suggests that with the exception of a potential ca. 1826 toll gate keeper's residence in Rockfish Gap, all of the potential domestic sites may date from the second half of the nineteenth to the first half of the twentieth centuries, demonstrating the growth of this rural area in the decades succeeding the opening of the Blue Ridge Railroad.

Anticipated archaeological resources

Analysis of the soils and slopes located within the project area suggest that it would have seen only limited prehistoric use. On the eastern side of the project area the Myersville-Catoctin type soils are very stony and occupy 35 – 55% slopes. Likewise on the western side of the project area the Cataska and Lew type soils are also very stony possessing 10 – 50% slopes. These environmental conditions discouraged permanent or semi-permanent occupation sites but could have supported sites related to seasonal foraging or acquisition of valuable resources.

The same environmental conditions discouraging permanent prehistoric settlement of the project area would also have discouraged early historic period settlement. The rocky soils and extreme slopes within the project area were not suitable for productive cash crop agriculture. While trees within the project area vicinity may have been harvested for personal and commercial use, the project area was not likely settled until the first half of the nineteenth century. The presence of a well-used gap in the Blue Ridge Mountains and the establishment of the turnpike road system at the end of the first quarter of the nineteenth century would likely have encouraged residential and commercial occupation primarily along and adjacent to the transportation corridor. The establishment of the Blue Ridge Railroad in the mid-nineteenth century also encouraged the development of small adjacent railroad towns and the growth of the commercial orchard industry.

On the eastern side of the Blue Ridge Tunnel Greenway project area, because most of the eastern trail and trailhead lies within the historic Blue Ridge Railroad corridor it is expected that any potential historic sites will be associated with this period of development or later. On the western side of the project area the proposed Greenway route leaves the historic Blue Ridge Railroad corridor, crosses the *Staunton and James River Turnpike*, and then climbs steep slopes to its intersection with the current alignment of Route 250. It is expected that material culture associated with the construction and operation of the Blue Ridge Railroad, and the earlier *Staunton and James River Turnpike*, may be encountered just west of the western portal to the Blue Ridge Tunnel, however very little prehistoric or historic material culture is expected in areas where there are steep slopes.

6 Archaeological Findings

Field Methods

Surface visibility throughout the project area was generally very poor and archaeological investigations within the Blue Ridge Tunnel project area relied upon the excavation of shovel test pits to test for the presence of material culture.

The locations of shovel test pits were recorded in the field on scaled topographic maps of the Blue Ridge Tunnel project area provided by Woolpert, Inc. All shovel test pits measured no less than 1.5 x 1.5 feet in diameter and were excavated to sterile subsoil wherever possible, or where deep soils were present to a depth of approximately 2.0 feet. All soils were screened through ¼ inch hardware cloth to ensure consistent artifact recognition and recovery. Soil stratigraphy was recorded for each shovel test pit including information on color, texture, inclusions and depth of each stratum. All artifacts recovered were bagged according to shovel test provenience. Material culture recovered was brought back to the lab for processing including washing, identification and cataloging.

A total of 100 shovel test pits were excavated during the Phase I archaeological survey of the Blue Ridge Tunnel project area, 4 within the eastern trailhead, 85 within the western trail, and 11 within the western trailhead. No shovel testing was proposed for the eastern trail due to the location of the proposed trail on the existing historic rail bed corridor. No shovel testing was proposed for the Blue Ridge Tunnel, that portion of the project area including the tunnel proper from east portal to west portal and the approach cuts through bedrock on either end.

Results

Section 1 - Eastern Trailhead

A total of 4 shovel test pits, 97 – 100, were excavated at 50-foot intervals at the eastern trailhead in the area proposed for construction of additional parking spaces. The 4 shovel test pits were excavated at the western-most end of the eastern trailhead in a line approximately 30 feet south of the historic Blue Ridge Railroad corridor (See Figure #25).

Soils encountered in this area, ranging between 0.4 to 1.7 feet in depth, consisted of stratum 1: a dry dark gray-brown silty loam with dense inclusions (50%) of shaley broken stone; and stratum 2: a dry light brown silt with significant inclusions (75%) of shaley broken stone. Bedrock was encountered in shovel test pit 97 at 0.45 feet below grade. Shovel test pits 98 -99 were ended arbitrarily due to dense deposits of stone with little or no soil matrix. Shovel test pit 100, placed against a steeper side slope to the historic Blue Ridge Railroad bed, encountered deeper stratum 1 soils and was ended arbitrarily at 1.7 feet below grade.

Material culture recovered from shovel test pits 97 – 100 consisted of limited amounts waster material and clinker. The clinker was not kept. The density of small-sized shale fragments in shovel test pits 97 – 100 and the limited presence of waster materials suggest

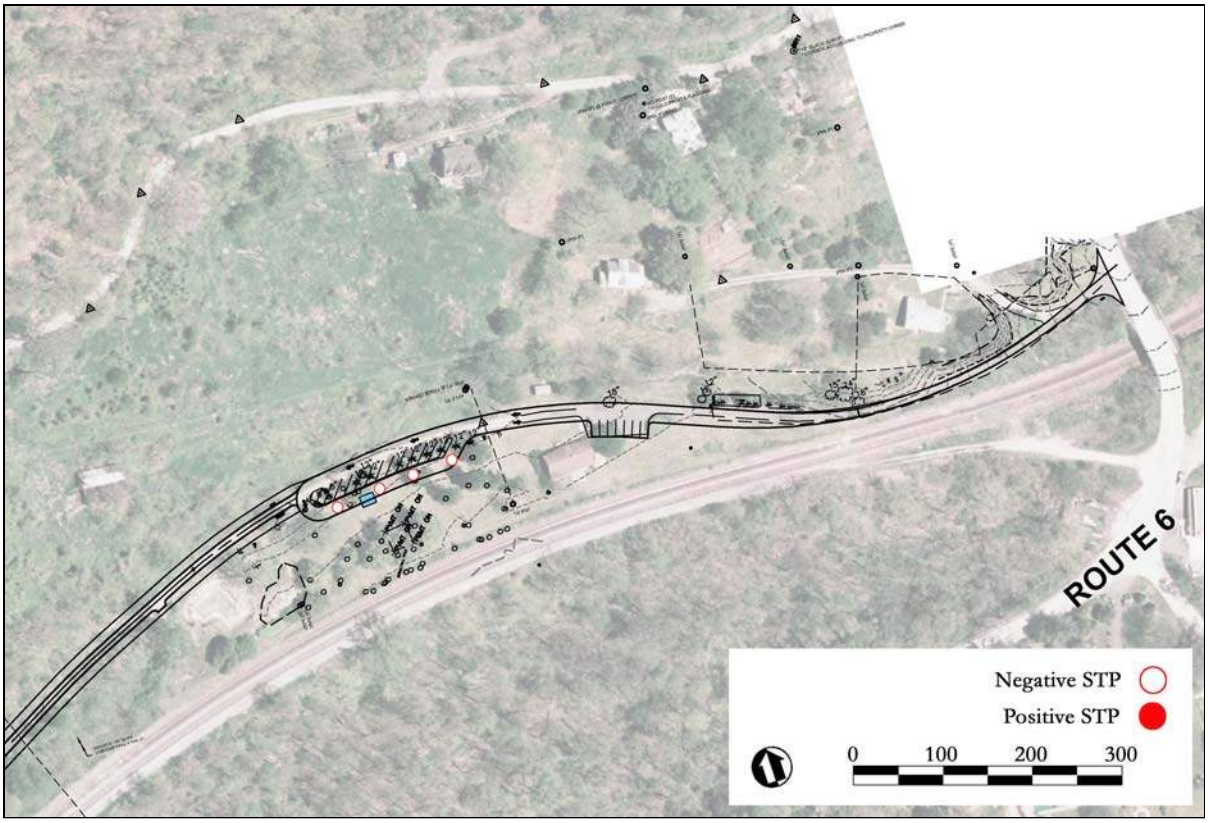

Figure #25: Location of shovel test pits within Section 1 – Eastern Trailhead.

that site soils in this vicinity possibly reflect evidence of previous construction related fill deposits. While dating of the fill deposits is difficult, the fact that the shovel test pits are located within 30-feet of the historic Blue Ridge Railroad bed, and the fact that the greatest amount of construction occurred in the mid-nineteenth century, it is likely that the fill soils also date to this period.

Section 5 - Western Trailhead

No formal excavation was proposed for the areas of Section 5 covered in asphalt, or the western (down slope) shoulder of the abandoned road bed where it was assumed that the artificial embankment constructed during the 1930s contained fill soils extending down at least to the point beyond which shovel testing would be effective. Phase I shovel testing however was proposed in areas along the eastern (upslope) side of the road bed where new excavation was proposed to create parking spaces for cars and buses. A single line of shovel test pits was placed on the inside of the semicircle on level with the road bed where appropriate, and where additional cutting and excavation was proposed, above the road surface just east of the 1930s road cut. A total of 11 shovel test pits, 86 – 96, were excavated at 50-foot intervals at the western trailhead along the interior edge of the proposed semi-circular parking area, and upslope and above the proposed semi-circular parking area where additional cutting and excavation are proposed (See Figure #26).

Soils encountered in the western trailhead varied considerably based on location of shovel test pit. Shovel test pits 86 – 91 were placed above the road bed east of the 1930s Route 250 road corridor cut. Soils in shovel test pits 86 - 88 consisted of an approximately 0.4 to 0.5

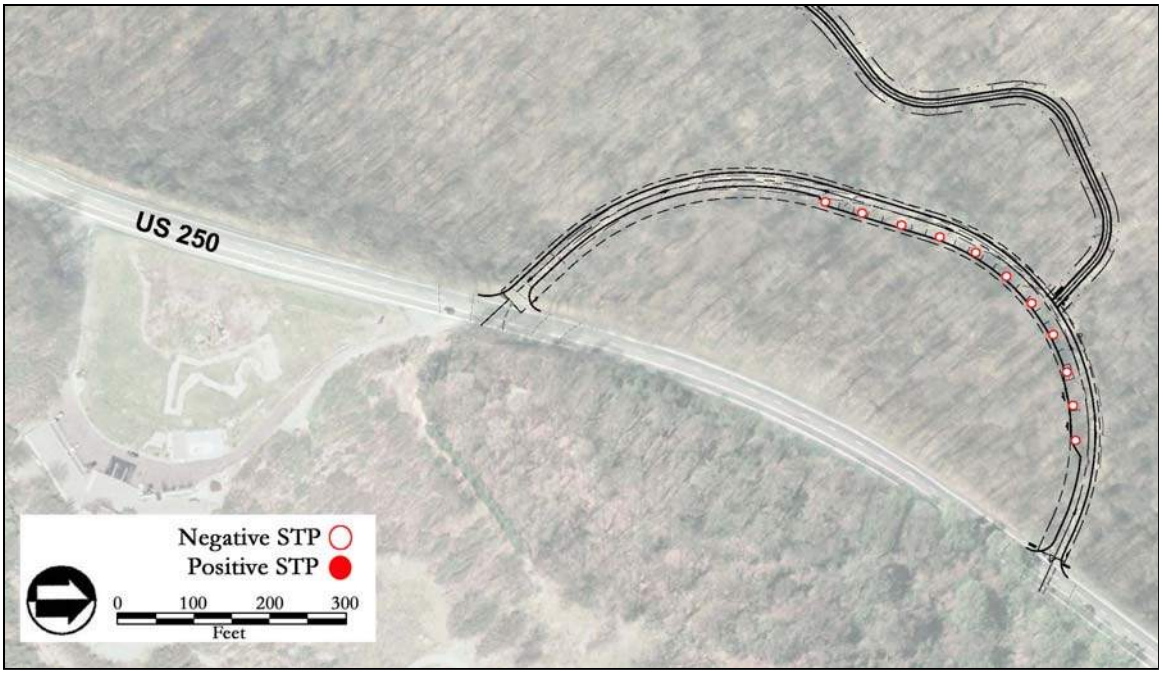

Figure #26: Location of shovel test pits, Section 5 – Western Trailhead.

foot thick very dry dark brown silty loam overlying a thick very compact strong brown to red-brown silty clay, subsoil-like in appearance. Each of these units was ended arbitrarily due to depth. Shovel test pits 89 – 90 also contained two strata, an approximately 0.4 to 0.5 foot deep compact and very dry yellow brown to strong brown silt with some inclusions of rocks, overlying a 0.5 to 0.9 foot thick red brown silty clay with significant saprolite. Generally stratum 2 was ended arbitrarily due to the presence of dense saprolite. What appeared to be an old road trace was noted just north of shovel test pit 90. Shovel test pit 91 was placed in a low lying area where modern trash was visible on the ground surface. Soils encountered in shovel test pit 91 were similar to 89 – 90, except that stratum 2 was significantly deeper, suggesting the presence of erosion and colluvial soils. No material culture was recovered from shovel test pits 86 - 91.

Shovel test pits 92 – 96 were placed at the level of the road on the interior eastern shoulder. Soils in shovel test pits 92 – 94, and 96 contained an approximately 0.3 to 0.6 foot thick very dark gray brown silty loam with significant root activity overlying a dark yellow brown silty loam with few gravel inclusions. Stratum 2 was quite deep and was generally ended arbitrarily due to depth. Shovel test pit 95 was placed approximately 15 feet west of a substantial bedrock outcropping and at the foot of a steep cut. Containing soils similar to shovel test pits 92 – 94, stratum 2 in shovel test pit 95 was a red-brown silty clay with significant saprolite inclusions that was ended due to the presence of bedrock. Shovel test pit 96 was placed at the base of a cut where modern trash was visible on the ground surface. Stratum 2 in shovel test pits 92 – 94 and 96 is interpreted as a fill deposit associated with the construction of Route 250 ca. 1930s. Stratum 2 in shovel test pit 95 is interpreted as a fill deposit potentially related to the presence of the nearby bedrock outcropping and construction of Route 250.

Section 4 - Western Trail

For the western two thirds of the western trail the proposed route follows the course of an old road bed. Unless otherwise noted, shovel test pits were placed in a single line along the centerline of this road bed. At the termination of the old road bed, the eastern third of the western trail was flagged approximately every 100 feet and shovel test pits were placed along the centerline of the flagged corridor.

A total of 65 shovel test pits were placed at 50-foot intervals along the proposed 10-foot wide western trail corridor. Of the 65 shovel test pits, seven (10, 19, 24-25, 29, and 31-32) were not excavated due to steep slopes exceeding 15% or water-logged and swampy soils (See Figure #27).

Figure #27: Location of shovel test pits, Section 4 – Western Trail.

Soils encountered in shovel test pits 1 – 34 along the course of the old road bed were highly variable in color, texture and inclusions. Shovel test pits dug along the road bed generally contained three strata. Stratum 1 soils encountered were typically silty or clayey loams brown to reddish-brown in color some containing significant gravel inclusions. Stratum 2 soils encountered were typically silty clays, yellowish brown to dark brown in color, some containing pale gray shale-like saprolitic inclusions. Subsoils throughout the western two thirds of the western trial corridor (stratum 3 in most shovel test pits) were encountered between 0.9 to 1.6 feet below grade and consisted of a red to red-brown or strong-brown

compact silty clay with pale gray shale-like saprolitic inclusions, or a yellowish-brown to yellowish-red silty clay also with pale gray shale-like saprolitic inclusions.

After the termination of the old road bed soils along the eastern third of the western trail became significantly rockier with bedrock or dense rock encountered at shallow depths, generally 1.0 to 1.4 feet below grade. Shovel test pits 35 - 55 were more uniform in soil color and texture. Shovel test pits dug along the eastern third of the western trail contained two strata. Stratum 1 soils encountered were typically a silt to silty loam, yellow-brown to light olive brown with some rock inclusions, often overlaid by a dense root mass. Stratum 2 soils encountered were generally similar in color and texture to stratum 1 (yellow brown silty clays) but contained significantly more stone.

After shovel test pit 55, a significantly steep slope (>45%) was encountered. The steep slope was not tested and shovel test pits were resumed at its base along the proposed route in a relatively flat area. Shovel test pits 56 – 65 were placed at 50-foot intervals along the remaining trail route. Soils within shovel test pits 56 – 65 were consistently rocky with half of the test pits encountering significant rock hindering excavation or bedrock at 0.6 to 0.7 feet below grade. Stratum 1 soils encountered in shovel test pits 56-59 were typically a silty clay, yellow-brown to olive-brown in color, with significant concentrations of small to medium sized stone. Stratum 2 soils encountered in shovel test pits 56 – 59 were typically a silty clay, yellow-brown to olive-brown in color, with fewer stone inclusions (See Figure #28).

Material culture was recovered from six shovel test pits (57, 59, 60, 61, 64, and 65) in this area. Material culture recovered was representative of both a domestic and industrial assemblage and included pearlware, whiteware, stoneware, bottle glass, container glass, pane glass, cut nails, railroad spikes, unidentified iron hardware, brick fragments, and waster material (cinder). Seventy four percent (n = 14 of 19) of the ceramics recovered were whiteware, and cut nails (post-1805) were the only type of nail represented. The predominance of these two types of artifacts dates the assemblage from these shovel test pits to a solid mid-nineteenth century context.

Additional radial testing, shovel test pits 66 – 85, was conducted to more accurately define the limits of the potential site. Radial test pits were placed 25 and 50 feet west of shovel test pits 57 – 61, and 25 and 50 feet both north and south of shovel test pits 64 – 65. No radial testing was conducted east of shovel test pits 57 – 61 due to the extremely steep slope in this location (See Figure #28).

Soils in shovel test pits 66 – 74 were fairly uniform in color and texture. Stratum 1 was a predominantly silty sand containing root mass and dark brown in color. Stratum 2 was also a silty sand with considerable inclusions of shale-like stone. Most shovel test pits were ended arbitrarily due to depth or dense stone. Artifacts were recovered from four shovel test pits (68, 72, 73 and 75). Material culture recovered was representative of both a domestic and industrial context and included whiteware, porcelain, lead glazed redware, container glass, bottle glass, pane glass, cut nails, spikes, a horseshoe, and waster material (cinders). Brick flecking and fragments were also noted in nearly every shovel test pit but not kept. 44% (n = 4 of 9) of the ceramics recovered during radial shovel testing were whiteware, again placing the larger assemblage in a solid nineteenth century context.

Soils in shovel test pits 75 – 85 were variable in both color and texture ranging from a predominantly silty clay loam to a sandy clay. Soil colors ranged from light olive to olive brown to a dark gray brown. While most shovel test pits contained two strata, some contained 4 strata perhaps representing alluvial deposition. In at least 5 shovel test pits (78, 79, 82, 83 and 84), a significant dense deposit (25-50%) of stone cobbles, approximately 0.2 to 0.3 feet in diameter, often contained within a sandy matrix were identified. The stone cobbles area believed to be remnant surfacing of the Staunton and James River turnpike road in this location (See Figure #29).

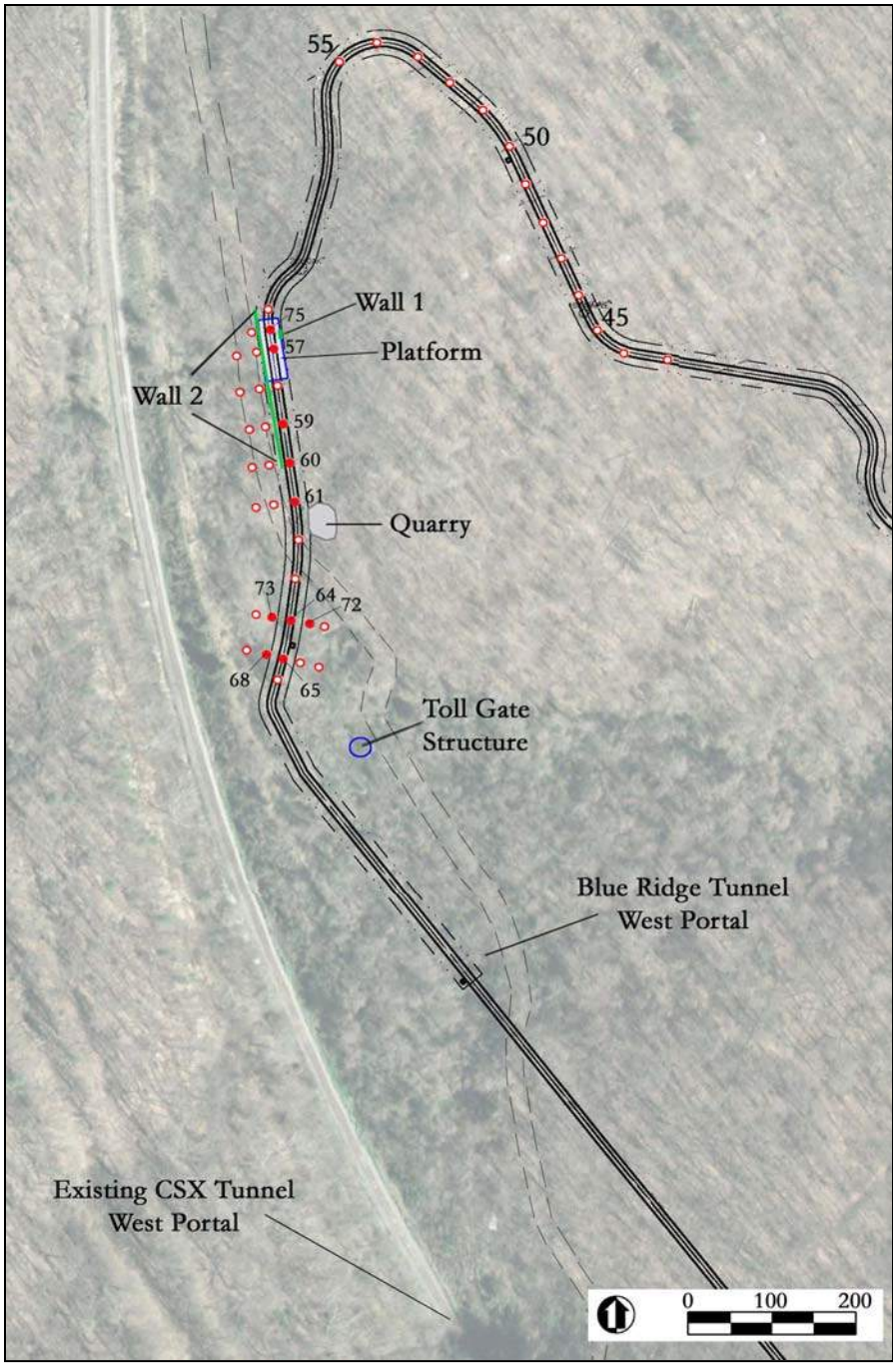

Figure #28: Detail, location of shovel test pits in Section 4 – West Trail, including Wall 1, Wall 2, Platform, Quarry and Toll Gate structure.

Figure #29: Stone cobbles of uniform dimension recovered from shovel test pit 83.

Site 44AU0829

Site 44AU0829 covers an area of approximately 62,500 square feet (1.43 acres) and is located 300 feet north of the western portal of the Blue Ridge Tunnel (See Figure #30). The site lies at the western end of the proposed western trail. Twenty nine shovel test pits excavated within the site yielded a total of 171 domestic and industrial historic artifacts including pearlware, whiteware, stoneware, bottle glass, container glass, pane glass, cut nails, railroad spikes, unidentified iron hardware, brick fragments, and waster material (e.g. cinder) (See Appendix One).

Stratigraphy across the site was generally consistently rocky ranging from a yellow-brown to olive-brown silty to sandy clay, to a brown to dark brown silty sand. A significant stratum of small shale-like stone identified in shovel test pits 56 – 59 at the base of steep slope may possibly be the result of fill soils functioning as an occupation terrace.

Several historic landscape features were identified both within and running through the defined site. An artificially leveled terrace measuring approximately 17 x 70 feet, possibly a platform for an activity area or structure, was identified just west of and adjacent to a steep slope between shovel test pits 56 and 58. Two stone wall fragments, one on the eastern side of the possible structural platform (wall 1), and a second adjacent to the western side of the possible structural platform (wall 2) were also identified (See Figures #31 and #32). Wall 1 was a short dry-laid stone alignment measuring 7 feet in length and approximately 2.5 feet tall. Although its short length is unusual, it is assumed to be possibly related to the adjacent artificially leveled platform. Wall 2 was also a dry-laid stone alignment measuring approximately 200 feet in length and only 1 to 1.5 feet tall. Because of its length and low profile, wall 2 is thought to possibly have served as a retaining wall for the artificially leveled terrace adjacent to its east. A small quarry cut into an adjacent steep slope was also identified just east of shovel test pits 61 and 62 and just south of the artificially leveled terrace. The quarry measured approximately 55 x 75 feet (See Figure #30).

The absence of significant quantities of material culture in radial shovel testing directly west of the artificially leveled terrace may indicate that this area served as a road corridor and as

such likely saw little deposition. Several historic period maps show a road, possibly the *Staunton and James River Turnpike*, in this general location east of the line of the Blue Ridge Railroad. However because Crozet mentioned moving the turnpike road in several locations on the west side of the tunnel there is some doubt as to whether this is the original location of the turnpike road or not.[75]

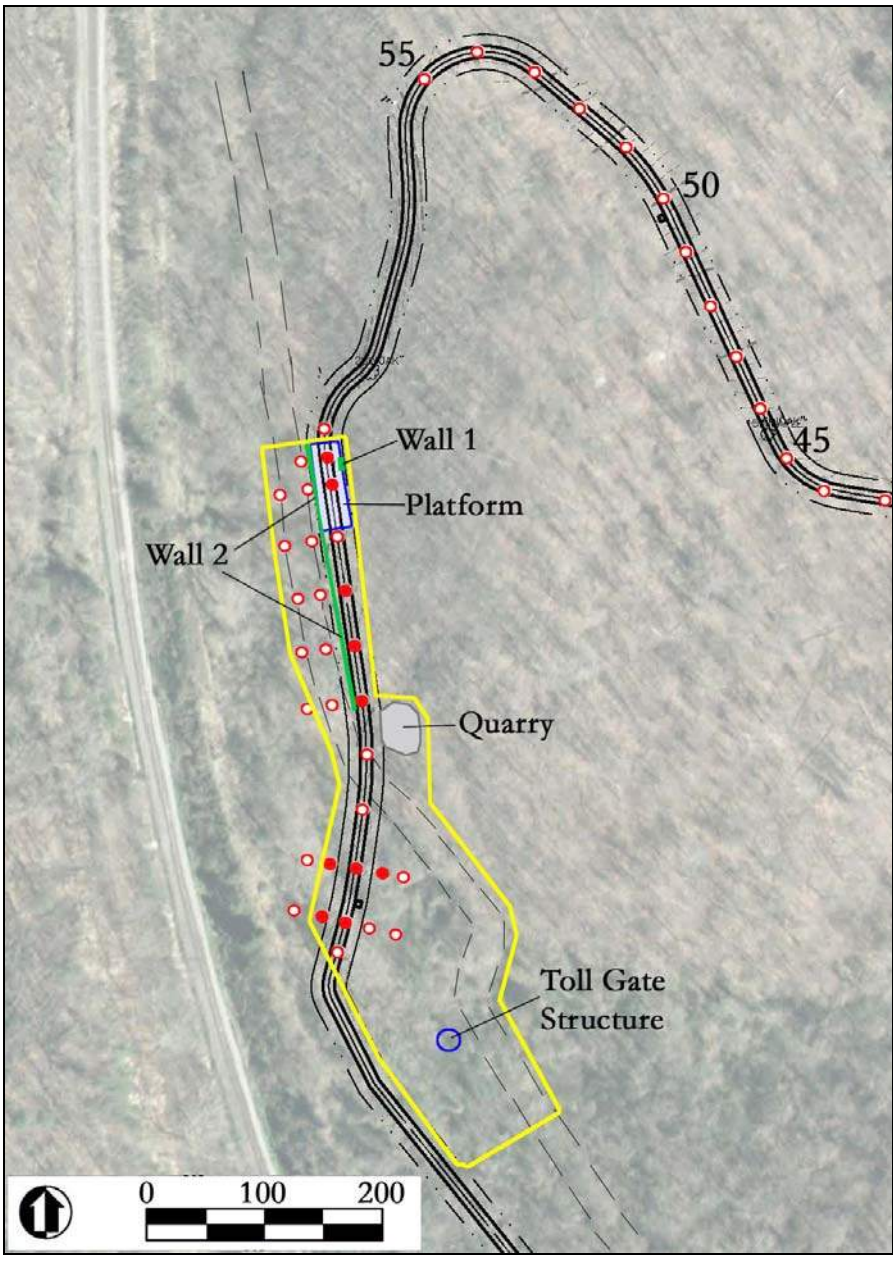

Figure #30: Site boundaries of and cultural features within 44AU0829.

[75] In a Report to the Board of Public Works for 1850, Crozet noted that on the western side, "the Staunton and James River Turnpike was likewise turned in two places, and some other minor additional works made." As cited in James Poyntz Nelson, *Four Tunnels in the Blue Ridge Region of Virginia*, 9. (Richmond: Mitchell and Hotchkiss, 1917).

Figure #31: Wall 1, looking east with platform terrace in front.

Figure #32: Wall 2, looking north with platform terrace at right.

Although difficult to determine, evidence suggested that the proposed trail route in this location crosses the historic road between shovel test pits 62 and 63. The course of the historic road proceeded uphill east of the Blue Ridge Tunnel crossing to its west side approximately 80 feet south of the western portal.

Even though shovel testing was limited to the proposed Greenway route and adjacent radials, the boundary of 44AU0829 was drawn taking into consideration topography and current historical knowledge of the project area. As a result site 44AU0829 was defined to include a relatively flat area south of the shovel testing including a potential residential site, possibly the toll gate keeper's house, identified in a previous reconnaissance survey (See Ford 2006), and that portion of the historic turnpike road running through the project area.

7 Research Summary and Recommendations

In all a total of 100 shovel test pits were excavated throughout the proposed Blue Ridge Tunnel Greenway route: 4 within the east trailhead, 11 within the west trailhead, and 85 along the western trail. The eastern trail, sited along the course of the ca. 1850-1858 bed of the former Blue Ridge Railroad, was not tested.

Shovel testing at the east trailhead failed to recover any artifacts other than waster material. The fact that the shovel test pits in this location were placed down slope and within 30 feet of the centerline of the bed of the former Blue Ridge Tunnel suggests that the waster material may have been deposited as part of the larger preparation of the mid-nineteenth century railroad, or deposited sometime during its nearly 100 year use. Soils contained significant quantities of small stone presumed to be evidence of ballast and/or grading and fill in this location. Because of the low potential to offer information important to the understanding of local and/or regional history, no further investigations at the eastern trailhead are recommended.

Shovel testing at the western trailhead failed to recover any material culture. Analysis of soils in this location demonstrated significant cutting and earth disturbances most likely related to construction of Route 250 during the 1930s. Because of the low potential to offer information important to the understanding of local and/or regional history, no further investigations at the western trailhead are recommended.

Shovel testing along the western trail recovered material culture only at its southern terminus north of and adjacent to the western portal of the Blue Ridge Tunnel. Soils encountered along an old road bed in the northern half of the trail were found to be heavily disturbed. Soils in the southern portion of the trail were found to be significantly rocky with outcrops of bedrock close to the surface in many locations. Site 44AU0829, approximately 650 feet long by 75 - 150 feet wide and located 300 feet north of the western portal to the Blue Ridge Tunnel, is a large medium-density historic site containing material culture from both mid-nineteenth century domestic and industrial contexts. The site was drawn to include a previously identified structure, potentially originally built as a ca. mid-1820s toll gate structure and associated with the *Staunton and James River Turnpike*, and also a large flat area believed to be a ca. 1850-1858 construction staging area just east of the western end of the western trail. Site 44AU0829 also contains a portion of an early nineteenth century turnpike road, although it is not known if the road reflects its original constructed location or Crozet's documented ca. 1850-1858 realignment.

Based on material evidence for mid-nineteenth century occupation and accompanying documentary evidence supporting the assumption that this site may be a domestic and/or industrial component associated with early to mid-nineteenth century transportation routes, it is believed that site 44AU0829 holds the potential to make important new contributions to existing historical understanding. It is therefore recommended that additional Phase II (Evaluation) archaeological investigations be conducted to more fully define site boundaries beyond the proposed trail corridor, to evaluate site-wide stratigraphic and cultural integrity, and to determine if the site is eligible for inclusion on the National Register of Historic Places.

In addition it is recommended that all construction related activity in the location of 44AU0829 avoid potentially ground disturbing impacts to the site. Activities that hold the potential to impact site 44AU0829 include but are not limited to the construction of temporary roads to allow construction vehicles access to the Blue Ridge Tunnel, the establishment of laydown and construction staging areas, and trail construction itself.

Avoidance is generally considered the best way to preserve a potentially significant archaeological site. Additional efforts that may mitigate potential ground disturbing impacts to site 44AU0829 include but are not limited to 1) pursuing additional archaeological investigations to determine if the site is eligible for inclusion on the National Register of Historic Places; 2) moving a portion of the proposed trail route to a new location, or 3) raising the area where potential ground disturbing activities may occur by bringing in sufficient fill soils.

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Blue Ridge Tunnel Greenway Project
Phase I Archaeological Survey
VDHR File 2006-1101
44AU0829
Artifact Catalog

Catalog - 2010 Phase I Archaeological Investigations

Provenience	*Mat. Gen.*	*Mat. Spc.*	*Type*	*Form*	*Description*	*TPQ*	*Qty.*	*Comments*
STP 57	Ceramic	Ref. Earthenware	Whiteware	Unidentified	base	1820+	2	cross-mend
	Ceramic	Ref. Earthenware	Whiteware	Unidentified	base	1820+	1	
	Glass	Glass	Container	Tumbler/Glass?	body, clear, facets		1	
	Glass	Glass	Container	Unidentified	body, clear		2	
							6	
STP 59	Ceramic	Ref. Earthenware	Pearlware	Holloware	body, transfer-print int., blue, unidentified landscape	1785+	1	
	Ceramic	Ref. Earthenware	Whiteware	Holloware	rim/body, sponge-decorated int. rim/ext., red	1820+	1	
	Ceramic	Ref. Earthenware	Whiteware	Unidentified	base w/ footring	1820+	1	
							3	
STP 60	Ceramic	Ref. Earthenware	Whiteware	Unidentified	body	1820+	2	
	Glass	Glass	Flat	Pane	aqua		2	
	Metal	Iron	Nail	Cut	complete, 3.5"	1805+	1	
	Metal	Iron	Nail	Cut	complete, 2.5"	1805+	1	
	Metal	Iron	Nail	Cut	complete, 2.25"	1805+	1	
	Metal	Iron	Nail	Cut	complete, 2"	1805+	1	
							8	
STP 61	Ceramic	Ref. Earthenware	Whiteware	Unidentified	body, salt-glaze ext., wash int.	1820+	1	
	Ceramic	Stoneware	Am. Gray	Holloware	body, salt-glaze ext., wash int.		1	
							2	
STP 64	Ceramic	Ref. Earthenware	Whiteware	Unidentified	body, molded filigree?	1820+	2	cross-mend
	Ceramic	Stoneware	Buff-Paste	Holloware	body, dark brown lead glaze int./ext.		2	
	Glass	Glass	Container	Bottle	body, 'wine,' olive green		1	
	Glass	Glass	Container	Bottle	base/heel, aqua		1	
	Glass	Glass	Flat	Pane	aqua		1	
	Metal	Iron	Spike	Wrought	shank, 0.5" by 0.5" by 4.5" long		3	Note: RR related?
	Metal	Iron	Spike	Wrought	shank, 0.5" by 0.5" by 3" long		1	Note: RR related?
	Metal	Iron	Nail	Cut	complete, 4.5"	1805+	2	
	Metal	Iron	Nail	Cut	complete, 0.75", round head	1805+	1	
	Metal	Iron	Nail	Cut	head and shank	1805+	7	
	Metal	Iron	Nail	Cut	shank	1805+	6	
	Metal	Iron	Nail	Unidentified	unidentified		11	
	Metal	Iron	Wire	Wire	unidentified		4	
	Metal	Iron	Fastener	Bolt	complete, 1" square by 5/8" tall, threaded hole		1	
	Metal	Iron	Unidentified	Bar	T'-shaped, 4" long, 1 7/8" tall		1	
							44	
STP 65	Ceramic	Ref. Earthenware	Whiteware	Unidentified	body/rim, hand-painted, blue horizontl band on rim, maker's mark	1820+	2	cross-mend, MM: '...anev…' and 'FRANCE'
	Ceramic	Ref. Earthenware	Whiteware	Unidentified	rim, hand-painted, blue horizontal band on rim	1820+	1	
	Ceramic	Ref. Earthenware	Whiteware	Unidentified	base	1820+	2	
	Glass	Glass	Container	Unidentified	body, aqua		1	
	Glass	Glass	Flat	Pane	aqua		1	
	Glass	Glass	Flat	Pane	clear		2	
	Mineral	Waste Product	Clinker		fragments		2	
							11	
STP 68	Ceramic	Ref. Earthenware	Whiteware	Unidentified	body	1820+	2	
	Ceramic	Ref. Earthenware	Whiteware	Unidentified	base w/ footring	1820+	1	
	Ceramic	Porcelain	Porcelain	Plate	rim/body/base		4	cross-mend
	Mineral	Waste Product	Clinker		fragments		2	
							9	
STP 72	Ceramic	Ref. Earthenware	Whiteware	Unidentified	body	1820+	1	
	Ceramic	Coarse Earthenware	Redware	Holloware	body, dark lead glazed int.		1	
	Glass	Glass	Container	Unidentified	body, clear		4	
	Glass	Glass	Flat	Pane	clear		1	
							7	
STP 73	Glass	Glass	Container	Bottle	body, aqua, flask shaped, embossed lettering		11	cross-mend; MM: '…ERT BROS. & CO., BALTIMORE, MD.'
	Glass	Glass	Container	Bottle	body, clear, flask shaped, strap on side		3	
	Glass	Glass	Container	Unidentified	body, clear		2	
	Glass	Glass	Flat	Pane			62	
	Metal	Iron	Shoe	Horseshoe	complete, 5" wide, 5.5" tall		1	
	Metal	Iron	Hardware	Unidentified	cast, cylindrical? with 'wave' skirt and flat rim		1	Note: stove part?
							80	
STP 75	Glass	Glass	Insulator		base, clear, raised dots		1	
							1	

171 Total Artifacts

Phase I Archaeological Survey of the Blue Ridge Tunnel Greenway Project

Nelson and Augusta Counties, Virginia

Addendum

Alternate Route Testing at the West Portal

VDHR File No. 2006-1101

Prepared for Woolpert, Inc.
Chesapeake, Virginia
And
Nelson County, Virginia

Prepared by Rivanna Archaeological Services, LLC
Charlottesville, Virginia

April 2012

Phase I Archaeological Survey of the Blue Ridge Tunnel Greenway Project

Nelson and Augusta Counties, Virginia

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Management Summary

Additional Phase I identification level and Phase IA reconnaissance level survey were conducted at the western portal of the Blue Ridge Tunnel (062-5105) in June and December of 2011. The goal of the additional work was to survey potential alternate routes for the proposed pedestrian trail that would avoid a previously identified archaeological site, 44AU0829. Identified during Phase I archaeological investigations in 2010,[1] 44AU0829 is an approximately 1.43 acre site containing predominantly nineteenth material culture and possessing both domestic and industrial components spanning the nineteenth and twentieth centuries. 44AU0829 possesses three components: 1) second quarter of the nineteenth century features associated with the historic *Staunton and James River Turnpike* including the potential remains of a toll keeper's house and portions of a turnpike road bed; 2) mid-nineteenth century domestic component most likely associated with resident Irish American laborers who built the Blue Ridge Tunnel; and 3) a mid-nineteenth through mid-twentieth century industrial component associated with the operation and maintenance of the tunnel and adjacent railroad.

A total of 19 shovel test pits were excavated over the course of the Phase I identification level survey for alternate routes at the western portal. Fifty five pieces of material culture, representing both domestic and industrial contexts, were recovered from 12 of the 19 shovel test pits. In particular, material culture recovered from shovel test pits 15 and 16, adjacent to and north of 44AU0829, included pearlware and whiteware ceramics and cut nails, a domestic assemblage dating to the first half of the nineteenth century.

Several new landscape surface features were also identified and documented during Phase IA reconnaissance level survey at the western portal. Four semi-circular earthen features cut out of a steep slope, and two stacked stone features (one wall and one large pile) possibly associated with adjacent earthen features were photographed and mapped. These landscape features are believed to be nineteenth century domestic sites and potential candidates for shanties, the impermanent earth fast shelters built by Irish-American laborers during the construction of the Blue Ridge Railroad ca. 1850 – 1858.

Due to the presence of first half of the nineteenth century material culture in shovel test pits 15 and 16, and several surface landscape features potentially associated with mid-nineteenth century domestic shanties, site 44AU0829 was enlarged at its northern end to incorporate the new cultural resources identified.

[1] Benjamin Ford, *A Phase I Archaeological Survey of the Blue Ridge Tunnel Greenway Project, Nelson and Augusta Counties, Virginia. VDHR File No. 2006-1101*. Prepared for Woolpert, Inc. and Nelson County, Virginia. Prepared by Rivanna Archaeological Services, LLC, 2011.

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Introduction

In 2006 Nelson County, Virginia purchased the Blue Ridge Tunnel and associated linear easements east and west of Rockfish Gap along the old railroad bed from CSXT. Nelson County, Virginia is currently in the process of obtaining approval for final design of the trail and rehabilitation of the tunnel prior to beginning construction on the 2.2 mile Blue Ridge Tunnel Greenway.

This report of findings represents the results of additional Phase I archaeological fieldwork at the western portal of the Blue Ridge Tunnel aimed at identifying alternate short routes around 44AU0829, a nineteenth century site with domestic and industrial components identified during Phase I testing in 2010. Due to the relatively small number of shovel test pits proposed to be excavated during the additional Phase I archaeological fieldwork, the Department of Historic Resources approved an abbreviated technical report designed as an addendum to initial fieldwork undertaken in 2010 and subsequently produced as *A Phase I Archaeological Survey of the Blue Ridge Tunnel Greenway Project, Nelson and Augusta Counties, Virginia* (VDHR File No. 2006-1101).

The additional archaeological investigations in June and December of 2011 were conducted in fulfillment of Section 106 of the National Historic Preservation Act and was designed and implemented according to standards set forth by the U. S. Secretary of the Interior (48 FR 44716-44742) and the Virginia Department of Historic Resources. The purpose of the additional Phase I archaeological fieldwork was to identify and to provide detailed information on the location and nature of archaeological resources potentially located within short alternate routes adjacent to the west portal of the Blue Ridge Tunnel.

Project Area and Environmental Setting

The Blue Ridge Tunnel Greenway project, a trail connecting the northern tip of Nelson County and the southeastern edge of Augusta County, crosses Rockfish Gap in the Blue Ridge Mountains through the 4,270-foot long Blue Ridge Tunnel. The focus of this study, is an approximately 125-foot wide by 400-foot long project area north of and adjacent to the western portal of the Blue Ridge Tunnel (Figure #1).

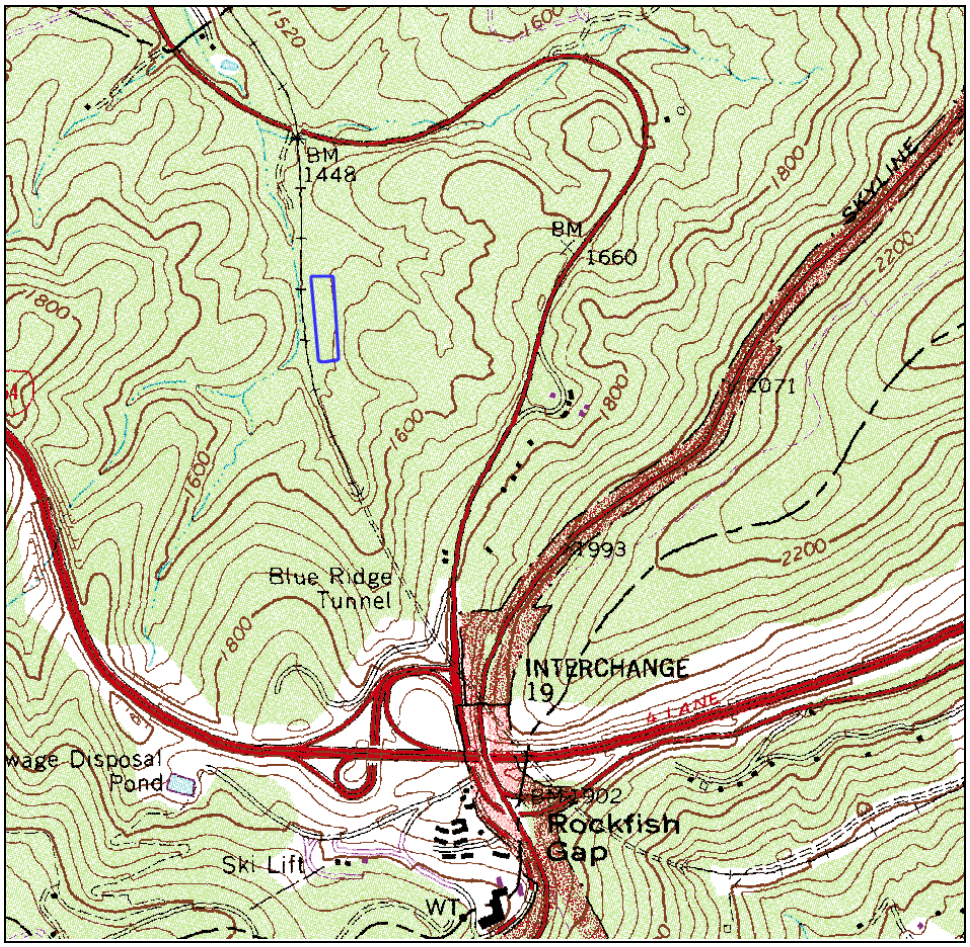

Figure #1: Detail, *U.S.G.S. Waynesboro East Quadrant 7.5 Minute Series*, showing Rockfish Gap and Augusta County project area outlined in blue.

The small project area is a relatively flat but gently northward-sloping terrain. Mature trees within the project area are sparse and vegetation is dominated by dense undergrowth including privet, vines and saplings. The project area is hemmed in by both natural and cultural physical barriers. The historic bed of the Blue Ridge Railroad lies on the western periphery of the project area while the Blue Ridge Mountains form the eastern and southern boundaries. Drainage for all surface runoff is to the north. As a result, numerous gullies, channels and areas of soil erosion can be found in the central portion of the project area.

Soils adjacent to the western portal of the Blue Ridge Tunnel include Cataska very stony silty loam (25 – 50-% slopes), Harleton soils (25 – 50% slopes) and Harleton channery loam (15 – 45% slopes).[2]

[2] U. S. Department of Agriculture, Natural Resources Conservation Service, *Web Soil Survey*. Electronic resource: http://websoilsurvey.nrcs.usda.gov/app/.

Research Design

Field location of alternate routes was dependent upon finding a reasonable grade down from the western flank of the Blue Ridge Mountains at the eastern periphery of the project area, and also connecting at an appropriate grade with the raised bed of the historic railroad at the western periphery of the project area. Steep grades at both ends of this short crossing limited where alternate routes could begin and end. In addition, because erosion of site soils was problematic in some areas, crossing from the steep slope on the east to the raised bed of the historic railroad on the west had to take into account surface drainage.

Because surface visibility was generally very poor with significant leaf litter and dense vegetation throughout the project area, archaeological investigations at the western portal of the Blue Ridge Tunnel relied upon the excavation of shovel test pits to test for the presence of material culture.

Prior to the initiation of shovel testing, a Phase IA Reconnaissance level walkover survey was conducted in the area north of and adjacent to site 44AU0829 in the vicinity of proposed alternate routes in an effort to locate additional cultural features visible at the ground surface. Systematic transects at 10-foot intervals were walked and all potential cultural features were flagged with surveyor's tape and pin flags. All cultural features were measured and photographically documented. The location of each cultural feature was accurately recorded in the field by surveyors.

Shovel test pits were placed at 50-foot intervals along the center line of each proposed alternate trail. The locations of all shovel test pits were accurately recorded in the field by surveyors. Shovel test pits measured no less than 1.5 x 1.5 feet in diameter and were excavated to sterile subsoil wherever possible, or where deep soils were present to a depth of approximately 2.0 feet. All soils were screened through ¼ inch hardware cloth to ensure consistent artifact recognition and recovery. Soil stratigraphy was recorded for each shovel test pit including information on color, texture, inclusions and depth of each stratum. All artifacts recovered were bagged according to shovel test provenience. Material culture recovered was brought back to Rivanna Archaeological Services' lab for processing including washing, identification and cataloging.

Anticipated Archaeological Resources

The 2010 Phase I survey identified 44AU0829, a nineteenth century site with domestic and industrial components, hugging the western flank of a steep slope adjacent to and north of the west portal to the Blue Ridge Tunnel. Twenty-nine shovel test pits excavated within the site in 2010 yielded a total of 171 domestic and industrial historic artifacts including pearlware, whiteware and stoneware ceramics, bottle glass, pane glass, cut nails, railroad spikes, cinder and brick fragments. Material culture with a first half of the nineteenth century context (pearlware, whiteware and cut nails) appeared to be clustered in two areas: a narrow approximately 250-foot long corridor at the base of a steep slope at the north end of the site, and a broader distribution towards the central portion of the site. While the central portion of 44AU0829 contained both industrial and domestic material culture, the narrowly defined northern portion of the site contained nearly exclusively tableware ceramics, glass and nails. 44AU0829 was drawn to include three other cultural features identified during an historic resource survey in 2006 including what is thought to be the remains of the ca. 1826 toll keeper house, a stone quarry, and the bed of the former ca. 1818 – 1825 *Staunton and James River Turnpike* (Figure #2).

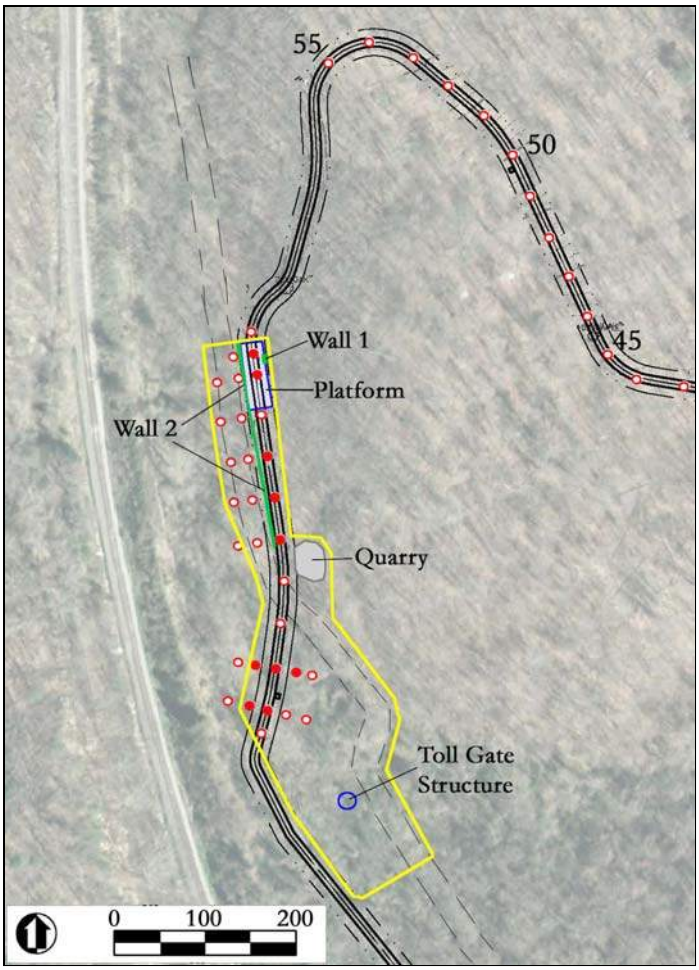

Figure #2: Site 44AU0829, defined in 2010, outlined in yellow showing wall features (green), quarry, toll keeper structure and course of Staunton and James River Turnpike (dashed lines).

Based on these findings, it was anticipated that the documented pattern of artifact distribution, domestic material culture concentrated in a linear band on the eastern periphery of the project area and industrial material culture concentrated in the central portion of the project area, would continue.

Archaeological Findings

Phase I fieldwork associated with proposed alternate routes adjacent to the west portal of the Blue Ridge Tunnel Greenway was undertaken in two phases. The purpose of additional Phase I shovel testing at the western portal was to find an alternate route that would avoid 44AU0829, an historic nineteenth century site with domestic and industrial components and likely associated with the construction of the Blue Ridge Tunnel.

On June 23, 2011, Phase I shovel testing examined two alternate trail routes at the western portal. Alternate A consisted of the excavation of ten shovel test pits at 50-foot intervals. Alternate B consisted of the excavation of four shovel test pits at 50-foot intervals. Both alternate A and B routes were laid out north and west of the original pedestrian trail route and sought to link the trail coming down off the western flank of the Blue Ridge Mountains with the raised bed of the historic railroad (Figure #3).

On December 15, 2011 a single alternate trail route was excavated at the western portal. Alternate C consisted of the excavation of five shovel test pits at 50-foot intervals. Alternate C also examined a route further north of the original pedestrian trail route seeking to link the trail coming down off the western flank of the Blue Ridge Mountains with the raised bed of the historic railroad (Figure #3).

Soils

Project area soils varied considerably within the relatively small project area. Throughout the central portion of the project area, between the flanks of the Blue Ridge and the historic railroad bed, soils consisted of two strata, an approximately 0.5 to 1.35 foot deep brown to dark brown sandy silt overlying an approximately 0.5 to 1.5 foot deep yellow brown silt with significant small-to-medium-sized shale-like rock inclusions. Where identified, subsoil was a dense, yellow-red silty sand with significant decaying shale-like rock inclusions at approximately 1.8 to 2.1 feet below grade.

Closer to the historic railroad bed, and on the western perimeter of the project area, soils were generally deeper and more complex (Figure #4). Often consisting of four or more strata, the top two strata consisted of an approximately 0.5 to 0.7 foot thick near black silty clay loam overlying an approximately 0.4 to 0.7 foot thick brown sandy silt with some shale inclusions. The bottom two strata consisted of an approximately 0.3 foot thick very dark gray sandy loam overlying an approximately 0.8 to 0.9 foot thick gray brown sandy clay mottled with yellow-red silty clay and containing some brick flecking. Railroad gravel and significant coal dust was frequently encountered in the upper strata of shovel test pits adjacent to the historic railroad bed.

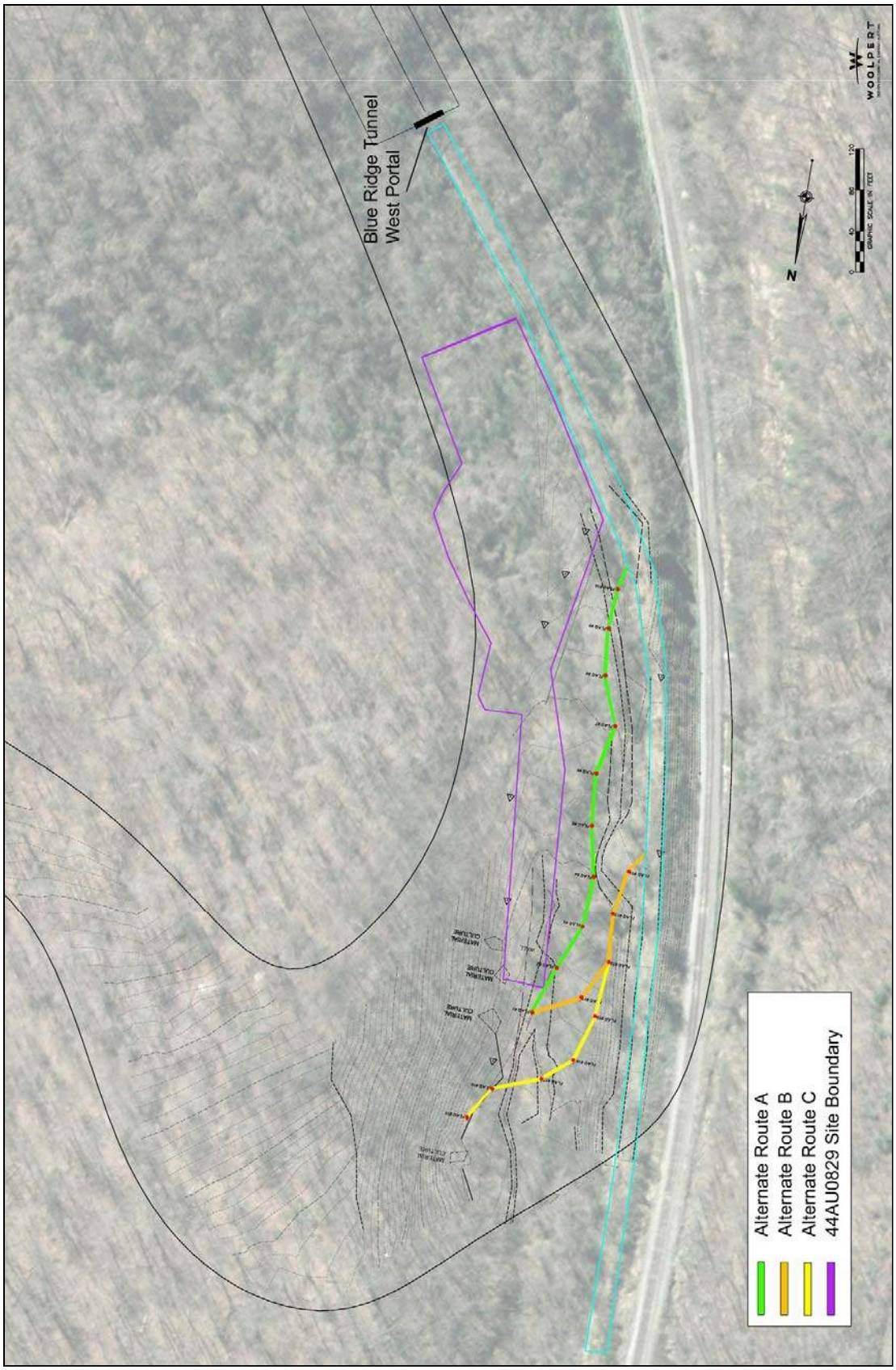

Figure #3: Plan showing location of alternate routes A, B, and C, shovel test pits, and site 44AU0829.

Material Culture

A total of 55 artifacts were recovered during Phase I shovel testing for the three alternate routes, A, B, and C examined at the west portal of the Blue Ridge Tunnel. Although noted when encountered, smaller brick flecks and brick and coal fragments were generally not collected based on the assumption that the multi-year construction of the thick brick lining within the tunnel, and its repair and replacement over time, would have resulted in significant brick debris over a widespread area.

Twelve of the 19 shovel test pits (63%) excavated during the Phase I survey of alternate routes A, B, and C contained some type of material culture (Figure #4). Of the 12 positive shovel test pits, 7 or 58% (shovel test pits 4 – 7, 10 – 11, 13) contained chronologically non-diagnostic material culture including brick fragments, coal, and cinder.

Material culture recovered from Phase I testing of alternate routes A, B, and C can be classified as associated with both domestic and industrial contexts. Tableware ceramics recovered were predominantly refined earthenwares (n=8 or 14.5%), including pearlware and whiteware, with only one coarse earthenware recovered (n=1 or 1.8%) (Table #1).

Three nails (n=3 or 5.4%) were recovered from Phase I survey of alternate routes A, B, and C. Each of the nails were identified as machine cut, dating to the post-1805 period. (Table #1).

Phase I survey of alternate routes A, B, and C recovered only limited amounts of pane and container glass (n=4 or 7.2%) (Table #1).

Table #1: Artifact Type by Count and Percent

Artifact Type	***Date Range***	***Count***	***% of Total***
Ceramics			
Pearlware	c. 1780-1830	5	.090
Whiteware	c. 1820+	3	.054
Lead-glazed Redware	c. 1800s	1	.018
Glass			
Pane glass (float)	c. 1955+	3	.054
Container glass	c. 1893- 1950s	1	.018
Brick			
Fragments	c. 1850+	20	.363
Nails			
Cut	c. 1805+	3	.054
Miscellaneous			
Coal		13	.236
Cinder / Slag		6	.109

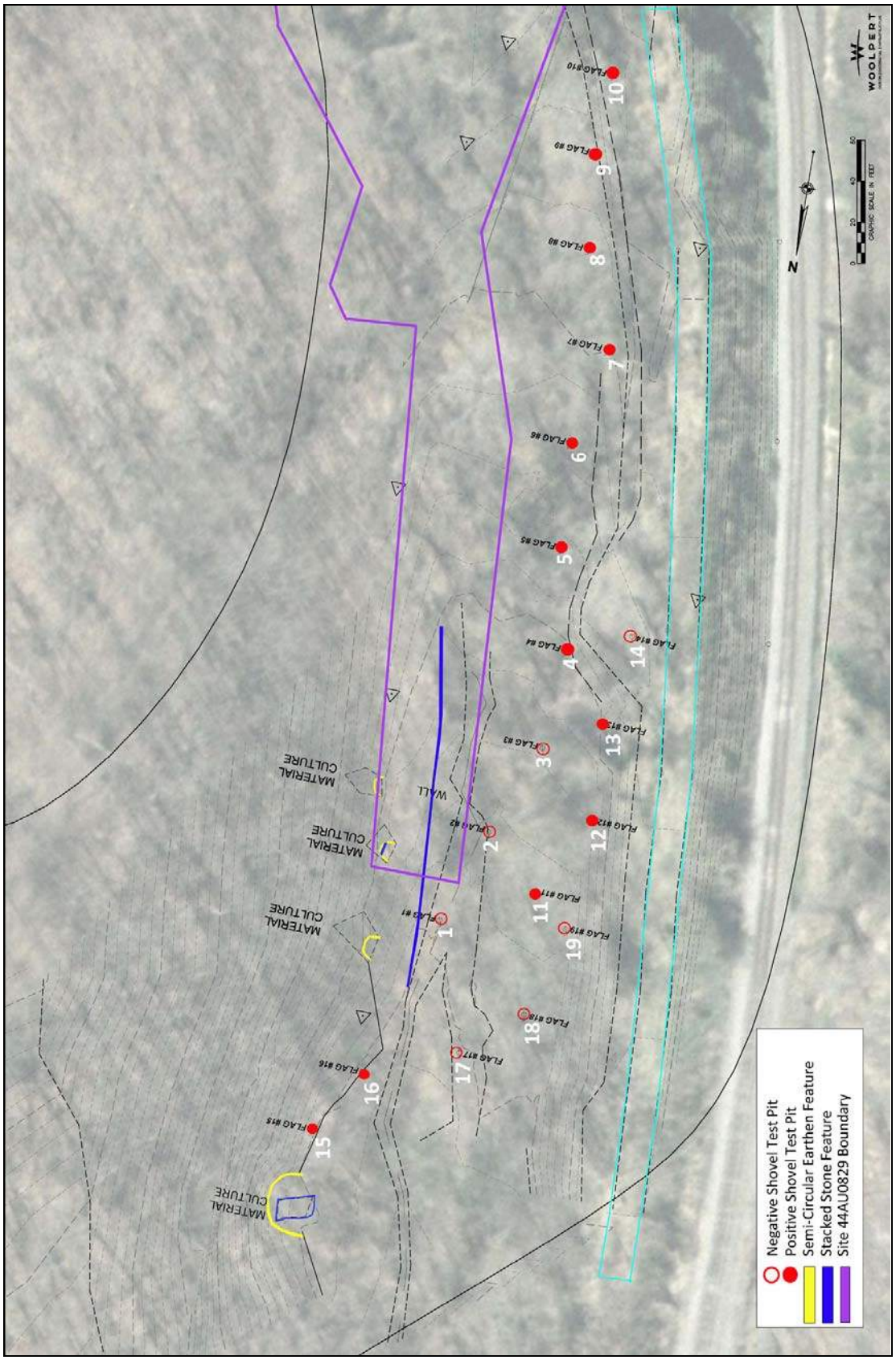

Figure #4: Plan showing locations of positive and negative shovel test pits and cultural features.

Brick was the most numerous artifact identified during Phase I alternate route testing. Consisting of flecking too small to recover, and fragments greater than ¼ inch diameter, brick composed over 36% (n=20 of 55) of the artifact collection. Likewise coal (n=13) and cinder (n=6) combined composed nearly 35% of the artifact collection (Table #1).

A preliminary spatial analysis of the material culture recovered has suggested some potential distribution patterns. Domestic ceramics were recovered nearly exclusively along the northeastern periphery of the project area, in shovel test pits 15 and 16 adjacent to and north of site 44AU0829. Like the domestic ceramics, nails too were recovered nearly exclusively along the northeastern periphery of the project area, in shovel test pits 15 and 16 adjacent to and north of site 44AU0829. These two artifact types, pearlware and whiteware ceramics and machine-cut nails, also appear to be the earliest material culture recovered on site. The concentration of early domestic material culture in this location is likely associated with the northern end of site 44AU0829 where similar domestic material culture was identified in 2010.[3]

Glass artifacts, although few in number, were largely concentrated along the western periphery of the project area, adjacent to and east of the historic railroad bed. The pane glass recovered was identified as float glass, a consistently uniform thickness and flat surface, produced exclusively during the post-1955 period. The single piece of container glass was identified as a machine-made dating to the late-nineteenth century through the twentieth century.

A significant amount of largely chronologically non-diagnostic material, including brick, coal and cinder, was recovered throughout the project area. Brick appeared to have the broadest distribution of any artifact. Brick, both larger fragments recovered during screening and smaller fragments noted in soils, was found in five shovel test pits (7-9, 11 and 13) largely located in the center of the project area and absent from the eastern and western peripheries. Coal, found in eight shovel test pits (4-6, 8-12), and cinder found in three shovel test pits (4, 7-8) were also generally recovered from the central portion of the project area, but coal was also found along the project area's western periphery adjacent to and east of the historic railroad bed.

[3] See Benjamin Ford, *A Phase I Archaeological Survey of the Blue Ridge Tunnel Greenway Project, VDHR File No. 2006-1101*, p50. Prepared for Woolpert, Inc. and Nelson County, Virginia. Prepared by Rivanna Archaeological Services, LLC, 2010. Material culture recovered from shovel test pits 57, 59, 60, 61, 64 and 65 in this area included pearlware, whiteware and stoneware ceramics, container and pane glass, cut nails, railroad spikes and brick fragments and cinder material. Cut nails were the only type of nail represented.

Landscape Features

Phase IA reconnaissance level walkover north and west of site 44AU0829 was conducted in the general vicinity of the proposed alternate routes A, B and C. Several potential cultural features were identified north of and adjacent to site 44AU0829.

Within the project area, several amorphous piles of shale-like stone, some of which contained large boulders, were identified. The shapes of the stone piles varied from circular to somewhat oblong-shaped linear clusters. The stone piles generally were no greater than two to three feet in height. Although no larger distributional pattern could be established, the stone piles were predominantly located in the central and western portions of the project area, often abutting and below the raised bed of the historic railroad. It is tentatively interpreted that these stone piles may be debris from the interior of the tunnel, possibly push or dump piles associated with the mid-twentieth century alteration of the tunnel by the Bottled Gas Corporation (Figure #5).

Figure #5: Example of pile of shale stone, possibly a twentieth century dump pile, within project area.

Several semi-circular earthen features (ranging in size from between 8 – 45 feet in diameter) were identified clustered in a linear alignment along the base of a steep slope of the Blue Ridge Mountains on the eastern periphery of the project area (Figure #14). The semi-circular features were carved or hollowed out from the adjacent steep slope. Four semi-circular features, 1 - 4, were mapped, measured and photographed.

Feature 1, a west facing earthen feature covered in leaf litter, was an approximately 8-feet wide (north-south) and 13 feet deep (east-west) cavity carved out of the adjacent western facing slope (Figure #6).

Figure #6: Feature 1, facing east, showing leaf filled depression or cavity in west facing slope.

Feature 2, also a west facing earthen feature covered in leaf litter, was approximately 10 feet wide (north-south) and 10 feet deep (east-west) cavity carved out of the adjacent western facing slope. A stacked stone wall segment, feature 5 defined the eastern cut of feature 2 (Figure #7).

Figure #7: Feature 2, facing east, showing leaf filled depression or cavity, as well as stacked stone wall segment, feature 5.

Feature 3, a west facing earthen feature covered in leaf litter, was an approximately 8-feet wide (north-south) by 11 feet deep (east-west) cavity carved out of the adjacent western facing slope (Figure #8).

Figure #8: Feature 3, looking northeast, showing leaf filled depression or cavity in west facing slope.

Feature 4 was very large hollowed out area, possibly natural in origin, sitting in the west facing slope. Feature 4 measured approximately 45 feet wide (north-south) and 26 feet deep (east-west). Sitting within the center of feature 4 was a large rectangular pile of tabular rock, feature 6 (Figure #9).

Figure #9: Feature 4, looking north, showing large leveled semi-circular area with feature 6, a large rectangular stone pile, in center.

Two of the semi-circular earthen features, features 2 and 4, also contained stacked stone walls or piles. Feature 5, forming the eastern cut of feature 2, was an approximately 7.5 foot long (north-south) and 2.0 – 2.5 feet tall segment of stacked stone. A width for feature 5 could not be determined as the stone wall segment was built into the soil face. The presence of feature 5 also created a short 7 foot wide terrace behind (and east of) it (Figure #10). Feature 5 was first identified in the 2010 Phase I survey as Wall 1.

Figure #10: Feature 5, looking east, showing stacked stone wall segment defining the eastern cut of feature 2.

Figure #11: Feature 6, looking west, showing rectangular shaped pile of tabular stones, in center of large semi-circular area, feature 4.

Feature 6, a rectangular shaped pile of tabular stones, was roughly centered within feature 4, the approximately 45 foot wide hollow. Feature 6 measured approximately 10 feet in width (north-south) and 16 feet in length (east-west). Feature 6 possessed raised edges, a concave center, and what appeared to be a linear alignment of stones on its south façade (Figures #11 and #12).

Figure #12: Feature 6, looking north, showing linear alignment of large stone in foreground.

Figure #13: Feature 7, looking south, showing a 175-foot long linear alignment of stone.

Adjacent to and west of features 1 – 3 was feature 7, an approximately 175-foot long linear alignment of stone, also identified in the 2010 Phase I survey was Wall 2 (Figure #13). Feature 7 served to create a relatively flat terraced area, an approximately 15 - 20 feet (east-west) by 80 feet (north-south) platform, holding soils between it and the steep slope to the east. To the west of feature 7 was a low-lying area with an undulating surface, approximately 1.0 to 1.5 feet in elevation below ground surface to the east of feature 7.

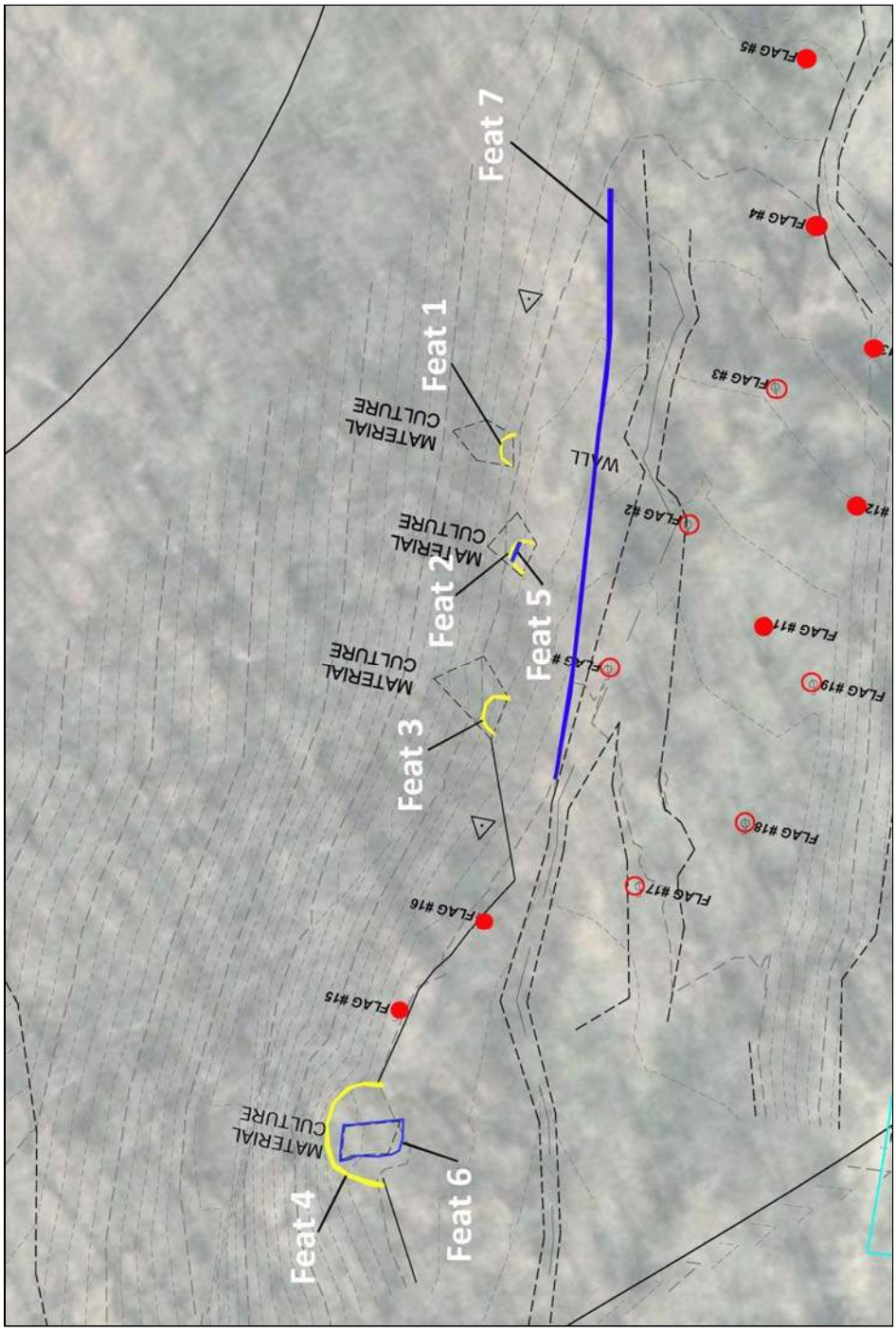

Figure #14: Detail, plan showing location of features 1- 7.

Research Summary and Discussion

Domestic material culture, including ceramic tableware and nails, were identified only in shovel tests pits 15 and 16, adjacent to and south of landscape features 4 and 6, a potential domestic site. Artifacts recovered from test pits 15 and 16 included pearlware and whiteware ceramics and three cut nails, material culture that dates to the first half of the nineteenth century. Twentieth century material culture, including flat and container glass, was limited to shovel test pits 8 - 9 and 12. Less chronologically sensitive industrial material culture, including brick fragments, coal and cinder, were more broadly distributed throughout the larger project area.

Although the Phase I survey of alternate routes A, B and C covered a relatively small area, some generalizations may be made about the distribution of material culture recovered. The fact that domestic material culture appeared to be limited to the eastern periphery of the project area (shovel test pits 15 and 16), appears to conform with the 2010 Phase I findings suggesting a domestic component in this vicinity. Phase I survey in 2010 identified similar first half of the nineteenth century domestic material culture at the northern end of 44AU0829. Likewise material culture believed to be associated with the nineteenth to twentieth century industrial component of the site, including brick fragments, coal and cinder, were largely absent from the domestic component of the site.

The Phase IA reconnaissance level survey, a systematic walkover of the area north and west of 44AU0829 containing the proposed alternate routes, and a comprehensive mapping[4] and documentation of all visible surface features resulted in the identification of several potential cultural features adjacent to and abutting the north end of 44AU0829. Taking into account the surface features identified within 44AU0829 in 2010, and the new surface features identified during fieldwork in 2011, two types of cultural features were identified: 1) areas that appeared to be hollowed out from a steep earthen bank; and 2) stone piles, clusters, or alignments.

A total of four semi-circular earthen features were identified in a linear arrangement carved out of and abutting a steep flank of the Blue Ridge Mountains. Three of the features, 1 – 3, are relatively small and appear to be carved out of and abutting the adjacent hillside and located close to one another. Feature 4, a much larger semi-circular earthen feature may be either natural or cultural, and is separated somewhat from the others. Features 1 – 3 are tentatively interpreted as potential domestic sites. It is not yet clear however whether these semi-circular earthen features may have formed part of the domestic structure itself, or have composed the space within which the structure was built.[5]

[4] Mapping new surface features and a re-mapping of formerly identified surface features contained within 44RB0829 was accomplished by a Woolpert, Inc. surveying team.

[5] Eyewitness descriptions of ‘shanties’ in other locations have recorded structures of small dimension, surrounded by earth ‘heaped up to the roof’ with only a plank roof exposed. See Lisa Goff, ‘Encamped, Not Established’: Irish Laborers in Early Nineteenth-Century Lowell, Mass., 5-6. Ms. in possession of author, n.d.

Three stone surface features were also identified. Two of these features, an approximately 250-foot long linear alignment, feature 7, only 1 – 1.5 feet in height (Wall 2), and a short dry-laid stone wall, feature 5, approximately 7 feet in length and 2.5 feet tall (Wall 1) were identified during fieldwork in 2010. The third stone feature was a significant sized concentrated pile of large stone, feature 6, many of which appeared to be tabular in nature. Features 5 and 6 are tentatively interpreted as the remains of domestic sites. Feature 7, a much longer stacked stone alignment, is interpreted as a potential boundary between the remnant *Staunton and James River Turnpike* to the west, and mid-nineteenth century domestic space to the east. Feature 7 also creates a relatively level platform in front of surface features 1 – 3, a fact that is partially obscured by the presence of talus and eroded soils.

Based on their location, their somewhat small size, and their association with first half of the nineteenth century domestic material culture, features 1 – 6 are believed to be possibly associated with tunnel worker domestic structures, or 'shanties,' constructed and occupied by Irish-American railroad workers. Period descriptions of antebellum Irish-American shanty towns throughout the eastern United States appear to document a strong vernacular architectural tradition encompassing several types of structural features including soils piled around exterior walls, stacked barrel or cask chimneys, and board or slab materials used in wall and roof construction. As a scholar of nineteenth century shanty towns has noted, "Irish houses were sometimes wedged into the sides of hills and embankments, and there seems to have been a tradition of building against the cuts of peat excavations which was used by Irish immigrants on the Great Plains."[6]

After purchasing the shanty of railroad worker James Collins in Fitchburg, Massachusetts 'for boards' in the early 1850s, Henry David Thoreau described the residence as a house of

> small dimensions, with a peaked cottage roof, and not much else to be seen, the dirt being raised five feet all around as if it were a compost heap. The roof was the soundest part, though a good deal warped and made brittle by the sun. Door-sill there was none, but a perennial passage for the hens under the door board. Mrs. C. came to the door and asked me to view it from the inside. The hens were driven in by my approach. It was dark, and had a dirt floor for the most part, dank, clammy and aguish, only here a board and there a board which would not bear removal. She lighted a lamp to show me the inside of the roof and the walls, and also that the board floor extended under the bed, warning me not to step into the cellar, a sort of dust hole two feet deep.

As Thoreau was later to find out, the Collins' shanty was held together with numerous nails, a commodity deemed valuable to many shanty town residents.[7]

[6] Goff, Encamped Not Established, p7.
[7] Henry David Thoreau, *Walden & On the Duty of Civil Disobedience*, 29-30. (Rockville, MD: Arc Manor, 2007).

Only a decade earlier, as a correspondent to the *Columbia Spy*, Edgar Allan Poe had described the 'picturesque' shanties of Irish squatters in New York City in unflattering terms.

> Perhaps, nine feet by six, with a pigsty applied externally, by way both of portico and support. The whole fabric (which is of mud) has been erected in somewhat too obvious of an imitation of the Tower of Pisa. A dozen rough planks, 'pitched' together, form the roof. The door is a barrel on end. There is a garden, too; and this is encircled by a ditch at one point, a large stone at another, a bramble at a third.[8]

Indeed some of the architectural features of shanties noted in other parts of the United States were also seen at the Blue Ridge Tunnel. As Mary Jane Boggs, a visitor to the Blue Ridge Tunnel, noted in 1851,

> There are a great many Irish cabins on each side of the mountains which reminded me of descriptions I have read of the manner of living of the lowest class in Ireland. They are mere hovels, and most of them have *one or two barrels on the top of the chimney*, but in some of them we saw muslin curtains, a strange mixture of *dirt* and finery [emphasis added].[9]

The archaeologically identified domestic and industrial components within and adjacent to 44AU0829 begin to inform the spatial arrangement and layout of mid-nineteenth century landscape north of the western portal to the Blue Ridge Tunnel. The mid-nineteenth domestic component, as defined by first half of the nineteenth century material culture and shanty-like surface landscape features, appears to be focused in a north-south linear cluster abutting the western flank of a steep slope of the Blue Ridge mountains and east of and adjacent to the *Staunton and James River Turnpike*. The industrial component, although more difficult to characterize spatially, is clearly absent from the domestic component and is generally more widespread across the larger project area. Current archival research also suggests that the domestic component is likely limited to the ca. 1850 – 1860 period, the years during which the railroad and tunnels were constructed, while the industrial component spans a much longer period between ca. 1850 and the mid-1950s and documents the continued use of the larger area into the twentieth century.[10]

A tentative conclusion regarding spatial arrangement at the western portal of the Blue Ridge Tunnel during the ca. 1850-1860 period is that railroad workers were forced to utilize marginal areas considered unsuitable for other activities in which to set up their domestic space. These marginal areas would have been located outside of the

[8] Edgar Allan Poe, 'Correspondence of the Spy – New York' [Doings of Gotham, Letter 1], P3, C2. *Columbia Spy* (Columbia, PA), Vol. XV, No. 4, May 18, 1844.
[9] Mary Jane Boggs Holladay. *The Journals of Mary Jane Boggs Holladay, 1851-1961*. (Charlottesville, 1970).
[10] Census records and historic maps have documented that the toll keeper's house, located within the south end of 44AU0829, was likely occupied well into the post-1860 period as a residence for Sampson Pelter, a stage driver, and A. Leake, an 'overseer,' and their families.

construction set up space and work areas, and likely also avoided pre-existing cultural and natural features such as turnpike roads and drainages. The area within and north of 44AU0829 identified as containing first half of the nineteenth century domestic material culture is just such a space. Tucked up against the steep flank of a hillside, adjacent to yet separated from the western portal of the tunnel and existing *Staunton and James River Turnpike* road bed, tunnel workers may have carved out a precarious domestic space for themselves.

The linear arrangement of surface features 1 – 6 also appears to be supported by primary source documents which confirm, at least in some places, a clustered linear spatial arrangement for Blue Ridge Railroad worker housing. On her visit to the Rockfish Gap in 1851, Mary Holladay noted "a great many Irish cabins on each side of the mountain," and the presence of six or eight 'shanties' all within a distance of 180 to 300 feet of one another on the east side of Rockfish Gap in 1854, distances which on average place a shanty approximately every 37 to 50 feet.[11]

Site 44AU0829

Given the presence of additional material culture dating to the first half of the nineteenth century identified during Phase I survey of alternate routes A, B, and C, and additional surface features potentially tied to mid-nineteenth century laborer housing identified during Phase IA reconnaissance level walkover, site 44AU0829 has been extended to the north to encompass shovel test pits 15 and 16 and cultural landscape features 3, 4 and 6 (Figure #15).

[11] Holladay, *Journals of Mary Jane Boggs Holladay*; *The Staunton Spectator* (Staunton, Virginia), August 2, 1854, p2.

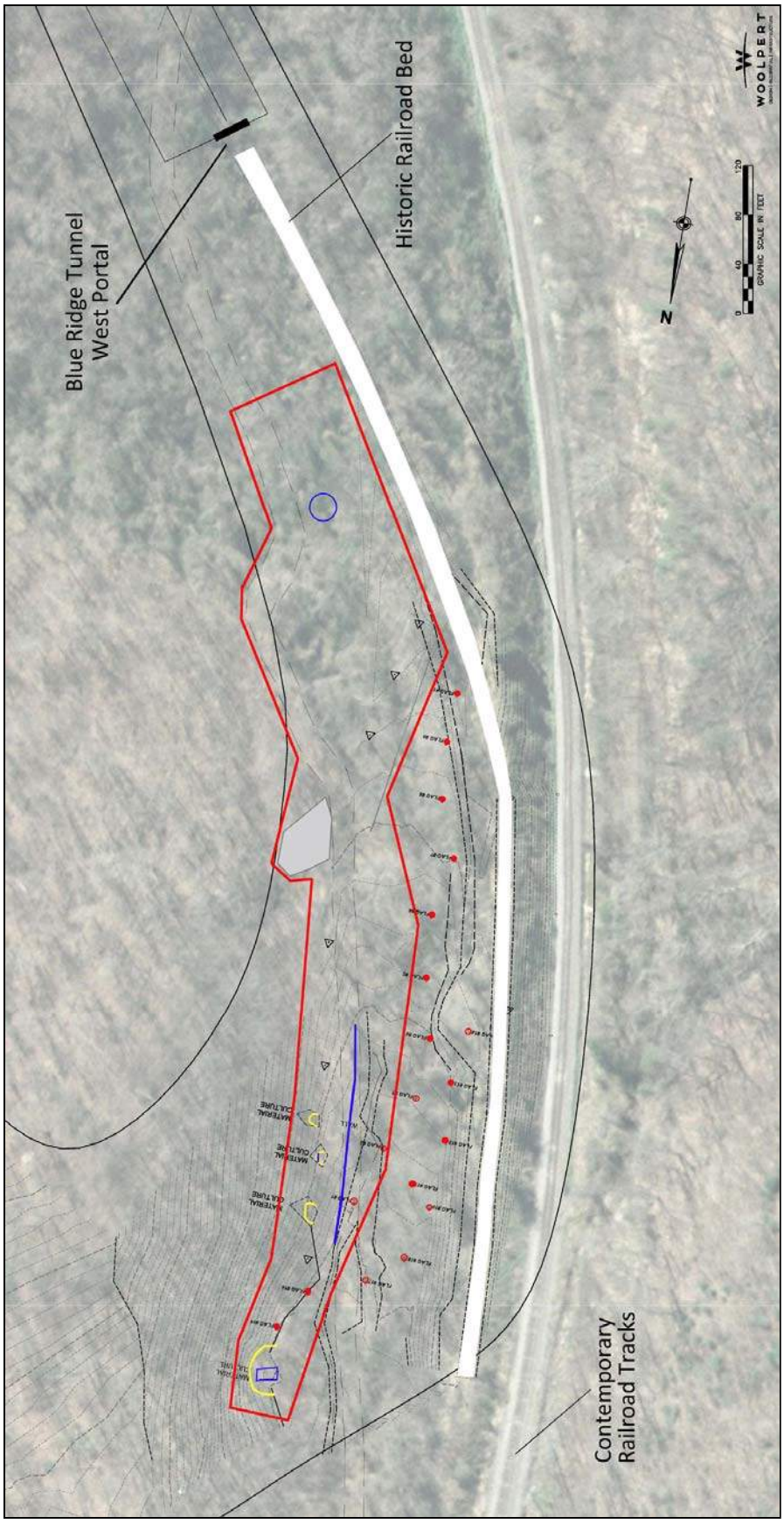

Figure #15: Plan showing new site boundary for 44AU0829, outlined in red.

Recommendations

Phase I investigations in 2010 and 2011 have documented site 44AU0829, an early nineteenth to mid-twentieth century historic site containing three separate components: 1) second quarter of the nineteenth century features including a potential toll keeper's house and remnant portions of the *Staunton and James River Turnpike* located both north and south of 44AU0829, and although heavily disturbed and eroded in places, also likely running through the site; 2) a ca. 1850-1860 domestic component with earthen and stone surface landscape features, potential shanty sites associated with the Irish American laborers who built the Blue Ridge Tunnel; and 3) a mid-nineteenth to mid-twentieth century industrial component associated with the operation and maintenance of the Blue Ridge Tunnel up through its use by the Bottled Gas Corporation in the 1950s.

Based on the findings of the 2010 and 2011 Phase I and IA surveys at the western portal to the Blue Ridge Tunnel, and the associated documentary evidence supporting both long-term industrial construction and occupation, and less-permanent domestic occupation of the larger area, it is believed that 44AU0829 has significant potential to make important new contributions to existing historical understanding. Because of its significant historical and archaeological potential, it is recommended that all activities associated with the construction of the Blue Ridge Tunnel Greenway avoid adversely impacting soils within site 44AU0829.

As currently proposed, the section of pedestrian path that will cross the site is designed to have no impact on soils contained within the redefined 44AU0829. East of the western trailhead where the proposed pedestrian path comes down off a steep slope and meets the eastern edge of 44AU0829, plans call for 'bridging' of the site. A thick geotextile fabric will be laid directly on the area to be spanned. A mattress composed of Amortec blocks will be laid directly on the geotextile fabric. Both the geotextile fabric and Amortec blocks will conform to the existing undulating ground surface. The total area to be 'bridged' is an approximately 8 x 65 foot section. After exiting the western side of 44AU0829 the geotextile fabric and Amortec block mattress will end and the trail will be constructed on a fill deposit that gradually rises to meet the grade of the old Blue Ridge Railroad bed.

Because current trail construction plans avoid 44AU0829 and should not impact site soils, no additional archaeological investigations are warranted. However if design plans should change and avoidance of impact to the site soils of 44AB0829 is not possible, it is recommended that additional Phase II (Evaluation) archaeological investigations be conducted to more fully define site boundaries beyond the proposed trail corridor, to evaluate site-wide stratigraphic and cultural integrity, to assist in the identification of specific features, and to determine if the site is eligible for inclusion on the National Register of Historic Places.

It is recommended that all construction related activity in the location of 44AU0829 avoid potentially ground disturbing impacts to both above grade surface features and below grade cultural deposits and features within the site. Activities that hold the

potential to impact site 44AU0829 include but are not limited to the construction of temporary roads to allow construction vehicles access to the Blue Ridge Tunnel, the establishment of lay-down and construction staging areas, and trail construction and associated engineering activities.

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2011 *A Phase I Archaeological Survey of the Blue Ridge Tunnel Greenway Project, Nelson and Augusta Counties, Virginia. VDHR File No. 2006-1101*. Prepared for Woolpert, Inc. and Nelson County, Virginia. Prepared by Rivanna Archaeological Services, LLC, 2011.

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U. S. Department of Agriculture
2012 Natural Resources Conservation Service, *Web Soil Survey*. Electronic resource: http://websoilsurvey.nrcs.usda.gov/app/.

Artifact Catalog
Blue Ridge Tunnel
Alternate Route(s)
June / December 2011

Shovel Test	Mat. Gen.	Mat. Spec.	Type	Form	Description	Qty.	Date	Comments
4	Stone	Coal	Coal	n/a	fragment	3		Not kept
4	Mineral	Waste Product	Clinker	Cinder	fragments	2		Not kept
5	Stone	Coal	Coal	n/a	fragment	2		Not kept
6	Stone	Coal	Coal	n/a	fragment	2		Not kept
7	Ceramic	Coarse Earthenware	Redware	Brick	fragment	1		
7	Mineral	Waste Product	Clinker	Cinder	fragments	2		Not kept
8	Ceramic	Coarse Earthenware	Redware	Brick	fragments	8		
8	Mineral	Waste Product	Clinker	Cinder	fragments	2		
8	Glass	Glass	Flat	Pane	aqua	1	post-1955	float glass?
8	Stone	Coal	Coal	n/a	fragment	2		Not kept
9	Ceramic	Coarse Earthenware	Redware	Brick	fragments	4		
9	Ceramic	Coarse Earthenware	Redware	Holloware	rim, clear lead glaze int.	1		large diameter bowl or jar
9	Glass	Glass	Flat	Pane	aqua	2	post-1955	float glass?
9	Stone	Coal	Coal	n/a	fragment	1		Not kept
10	Stone	Coal	Coal	n/a	fragment	1		Not kept
11	Ceramic	Coarse Earthenware	Redware	Brick	fragments	5		
11	Stone	Coal	Coal	n/a	fragment	1		Not kept
12	Glass	Glass	Container	Unidentified	body, clear, machine-made	1	ca. 1893-1950s	
12	Stone	Coal	Coal	n/a	fragment	1		Not kept
13	Ceramic	Coarse Earthenware	Redware	Brick	fragments	2		Not kept
15	Ceramic	Refined Earthenware	Pearlware	Plate/platter	base w/ footring, hand-painted int., blue	1	1785 - 1835	Shell-edge blue?
15	Ceramic	Refined Earthenware	Pearlware	Plate/platter	base w/ footring, hand-painted polychrome, floral, green/pink	1	1785 - 1835	cross-mend
15	Ceramic	Refined Earthenware	Pearlware	Plate/platter	body, hand-painted polychrome, floral, green/pink	1	1785 - 1835	cross-mend
15	Ceramic	Refined Earthenware	Pearlware	Plate/platter	body, hand-painted, floral, pink	1	1785 - 1835	cross-mend
15	Ceramic	Refined Earthenware	Pearlware	Plate/platter	body	1	1785 - 1835	cross-mend
15	Ceramic	Refined Earthenware	Whiteware	Indeterminate	rim, hand-painted int., annular, brown	1	1820+	
15	Metal	Iron	Nail	Cut	complete, 2-inch	1	1805+	
16	Ceramic	Refined Earthenware	Whiteware	Indeterminate	body	2	1820+	
16	Metal	Iron	Nail	Cut	shank	2	1805+	

COUNTY OF AUGUSTA

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF COMMUNITY DEVELOPMENT
P.O. BOX 590
COUNTY GOVERNMENT CENTER
VERONA, VA 24482-0590

16-703

Wayne District
ESC16012

Date: July 19, 2016

To: Michele L. Astarb, Subdivision Administrator

From: Jeff VanFossen, Civil Engineer

Subject: Crozet Tunnel

We have reviewed the subject plan last revised June 24, 2016, and have the following comments:

1. The plans are approved as revised on June 24, 2016.

2. State portion of the VSMP fees are $756, local fees have been waived. Revised application has been received.

3. An erosion and sediment control bond is required in the amount of $39,100. This may be submitted in the form of a Cashier's Check, Performance Bond or a Letter of Credit.

4. An on-site pre-construction conference will be required before the full Land Disturbing Permit can be issued. A Perimeter Control Permit will be issued after the plan has been approved, VSMP/LDP application and fee and bonds have been received. This permit is only good for the installation of Erosion and Sediment Control Measures. All perimeter controls (i.e. Silt fence, diversion dikes, sediment trap.) will need to be in place prior to the pre-construction meeting. Clearing and grubbing should only be done in areas that have perimeter controls. If the controls are not installed correctly, the Land Disturbing Permit will not be issued until the controls are approved.

5. As part of Virginia's stormwater regulations and the County's environmental ordinance the Full Land Disturbing Permit will not be issued unless the site is in compliance with the provisions of the Construction General Permit, as part of this requirement a SWPPP must be prepared and maintained. The CGP requires that a copy of the permit coverage letter is posted onsite and the SWPPP contact information is also posted.

If you have any comments, please do not hesitate to contact me.

COMMONWEALTH of VIRGINIA

Department of Historic Resources

Douglas W. Domenech
Secretary of Natural Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
TDD: (804) 367-2386
www.dhr.virginia.gov

February 8, 2013

Ms. Kirsten Tynch
Woolpert
415 Port Centre Parkway, Suite 101
Portsmouth, VA 23704

Re: Blue Ridge (Crozet) Tunnel Rehabilitation Project – Tunnel Stabilization and Rehabilitation
Nelson and Augusta Counties, Virginia
DHR File No. 2006-1101

Dear Ms. Tynch,

On December 20, 2012, January 21, 2013, and February 1, 2013, the Virginia Department of Historic Resources (DHR) received additional information regarding the above-referenced project for our review and comment pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended. We understand that the proposed project will be receiving federal funding in the form of a transportation enhancement grant.

Thank you for your explanations in response to our June 22, 2012 letter regarding the stabilization and rehabilitation of the Blue Ridge Crozet Tunnel. The photos and explanation relative to the Chetoogeta Mountain Tunnel rehabilitation in the late 1990s were extremely helpful in our understanding of the use and performance of shotcrete. Since our telephone conversation on January 29, 2013, and your plans dated May 2012, the stabilization and rehabilitation on the tunnel will occur in three phases progressing from east to west:

1. Ditching, drainage improvements, parapet construction above the east portal, and installing rock bolts and fiber-reinforced microsilica shotcrete (FRMS) as needed at the east end and portal of the tunnel; and
2. Removing the concrete bulkheads, any localized blasting of the invert to improve drainage, and applying rock support as needed; and
3. Grouting behind the existing brick liner, repairing and repointing the brick liner, ditching at the west end of the tunnel, applying rock support as needed , and removing graffiti.

Furthermore, it is our understanding from our January 2011 letter, and your recent information submitted via email on January 29th and February 1st, 2013, that:

- The brick will be repaired and repointed with mortar selected as appropriate from the mortar analysis (Virginia Limeworks, April 2011).

Administrative Services
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- Only areas in the lined section of the tunnel with deep brick fall out will be filled with shotcrete, covered with waterproof mortar, and lined with new brick to match the old.
- Shotcrete will be used on select spots only within the unlined and lined portion of the tunnel for stabilization purposes. Less than 10% of these portions will receive this treatment.
- The rock bolts will be used as rock support as needed to reinforce rock blocks.
- Water is intended to be directed towards existing weep holes as much as possible.
- Graffiti will be removed with the gentlest means possible.
- The brick will be monitored during the blasting and if any damage or fallout is observed, demolition activities will immediately stop and proceed again to try working with a smaller charge.

Effects to the other historic properties involved in this project have been resolved through previous consultation with our office. Therefore, based upon a review of the information provided, DHR recommends that this project inclusive of the trail construction and tunnel stabilization and rehabilitation will have *no adverse effect* on historic properties provided that the following seven points above are followed. Should the scope of work change, particularly in the way any of the treatment methods are carried out on the tunnel, please contact our office for guidance.

It has been a pleasure working with you on this project, and we look forward to seeing this project once completed. Should you have any additional questions, please contact me at (804) 482-6084, or via email at andrea.kampinen@dhr.virginia.gov.

Sincerely,

Andrea Kampinen

Andrea Kampinen, Architectural Historian
Office of Review and Compliance

Cc: Dr. Benjamin P. Ford, Rivanna Archaeological Services, LLC

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Civil Rights Requirement for Pre-Bid Meeting - Mandatory
Project: EN02-062-142,P101,C501 – UPC 63574
Blue Ridge Tunnel Rehabilitation - Phase 2 & 3
Date/Time: Friday, May 12, 2017 – 1:00 p.m.

Form C-111 – Minimum DBE Requirements must be completed and submitted with bid or received no later than 10:00 a.m. the next business day after the time stated in the bid proposal for the receipt of bids. All firms bidding on the project will have to submit form C-111 by 10:00 a.m. the next business day if not submitted with bid.

At time of bid, if the bidder knowingly cannot meet or exceed the required DBE contract goal, it shall submit Form C-111 exhibiting the DBE participation it commits to attain as a part of its bid documents along with Form C-49, DBE Good Faith Efforts Documentation or within two (2) business days after the bid opening or when requested by VDOT.

Form C-112 – Certification of Binding Agreement must be completed and submitted with bid or if determined the lowest responsive and responsible bidder within three (3) business days after bids are received. DBE's bidding as prime contractors are not required to submit Form C-112 unless they are utilizing other certified DBE's as subcontractors.

Form C-48 – Subcontractor/Supplier Solicitation and Utilization Form – All bidders, including DBEs bidding as Prime Contractors, must complete and submit this form within ten (10) business days after the opening of bids or with bid.

Form C-49 – DBE Good Faith Efforts Documentation –This information must be submitted within 2 days after bid opening if your bid does not meet the project DBE requirement or when requested by VDOT if DBE requirement is not met. **VDOT is requesting Form C-49 be submitted with bid if bidder cannot meet required contract DBE goal.**

DBE Requirement: **9%**

The only DBE firms eligible to perform work on federal-aid contracts for DBE contract goal credit are firms certified as Disadvantaged Business Enterprises (DBE) by the Department of Small Business and Supplier Diversity (SBSD). DBE firms must be certified in the specific work listed for DBE contract goal credit. A directory listing of certified DBE firms can be obtained from the SBSD website http://www.sbsd.virginia.gov

Please feel free to contact Phyllis A. Brice at 434-856-8169 or Renate Otey at 434-856-8170 for information concerning Civil Rights Requirements with this project.

This project could be reviewed for EEO Contract Compliance and will be reviewed for DBE Compliance.

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
SECTION 105.06 SUBCONTRACTING
(FEDERAL FUNDED PROJECTS)

February 9, 2017

Section 105.06 - Subcontracting of the Specifications is amended to include the following:

d) According to Commonwealth of Virginia Executive Order 20, the Contractor is encouraged to seek out and consider Small, Women-owned, and Minority-owned (SWaM) businesses certified by the Department of Small Business and Supplier Diversity (DSBSD) as potential subcontractors and vendors. Further, the Contractor shall furnish and require each subcontractor (first-tier) to furnish information relative to subcontractor and vendor involvement on the project.

For purposes of this provision, the term "vendor" is defined as any consultant, manufacturer, supplier or hauler performing work or furnishing material, supplies or services for the contract. The Contractor and, or subcontractor (first-tier) must insert this provision in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). The applicable requirements of this provision are incorporated by reference for work done by vendors under any purchase order, rental agreement or agreement for other services for the contract. The Contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or vendor.

The submission of a bid will be considered conclusive evidence that the Contractor agrees to assume these contractual obligations and to bind subcontractors contractually to the same at the Contractor's expense.

When an approved Form C-31 "Subletting Request" is required according to IIM-CD-2013-06.01, the Contractor shall indicate on the Subletting Request if a subcontractor is a certified DBE or SWAM business.

The Contractor shall report all DBE, SWAM, and Non SWAM vendor payments quarterly to the District Civil Rights Office. The Contractor shall provide the information in a format consistent with Form C-63, Vendor Payment Compliance Report, subject to the approval of the Engineer.

DBE Participation and reporting shall be in accordance with the Special Provision for Section 107.15 (Use of Disadvantaged Business Enterprises).

If the Contractor fails to provide the required information, the Department may delay final payment according to Specification Section 109.10.

Client: **Nelson County**

Subject: **Blue Ridge (Crozet) Tunnel Rehabilitation Project - Phase 2 & 3**

Bid Proposal Form as Issued with Addenda 2

Phase 2 - Trail, Tunnel Rehabilitation and Construction

Phase 2a - Trail thru Tunnel Section

Item No.	VDOT Sec.	Pay Items	Quantity	Unit	Unit Cost	TOTAL
1	513	Mobilization	1	LS		
2	517	Construction Surveying	1	LS		
		Path Construction				
3	307	Aggregate Material No. 10, 2"	263	CY		
4	309	Aggregate Base Material, (No. 21B)	1065	CY		

Phase 2b - Tunnel Rehabilitation and Construction

Item No.	VDOT Sec.	Pay Items	Quantity	Unit	Unit Cost	TOTAL
5	513	Mobilization/ Demobilization	1	LS		
6	NS	Bulkhead Removal (Southerly)	1	EA		
7	NS	Bulkhead Removal (Northerly)	1	EA		
8	NS	Shotcrete (filler behind brick)	60	CY		
9	NS	Reset Historic Brick and Mortar	500	EA		
10	NS	Replacement Brick and Mortar	500	EA		
11	NS	Repointing	2500	LF		
12	NS	Grouting	600	CY		
13	NS	Grout Holes	500	EA		
14	NS	Drain Holes	100	EA		
15	NS	IPP - Probe Holes	30	EA		
16	NS	Rock Bolt Installation	600	LF		
17	NS	Rock Dowel Installation	80	LF		
18	NS	Housekeeping, including Scaling	1	LS		
19	NS	Graffiti Removal	1	LS		
20	NS	Localized Blasting	20	CY		
21	NS	East Portal Parapet Wall	1	LS		
22	NS	Bat Net over Both Portals (Sept 1 -Dec 15)	1	LS		
				TOTAL - Phase 2		

Phase 3 (with limited portions of Phase I as indicated in the plans) - as issued with addendum 2						
Item No.	**VDOT Sec.**	**Pay Items**	**Quantity**	**Unit**	**Unit Cost**	**TOTAL**
23	513	Mobilization	1	LS		
24	517	Construction Surveying	1	LS		
		Earthwork				
25	301	Clearing and Grubbing	1.60	AC		
26	303	Earthwork (Cut and Fill - In-Place)	1	LS		
27	NS	Final Grading to include Spreading of Topsoil	1	LS		
28	303	Earthwork (Fill) - Measured in place (near Phase 1 trailhead)	1	LS		
29	NS	Water Bars	26	EA		
30	NS	Retaining Wall - Landscape Timber, Installed*	2000	SF		
		(*if necessary, not shown on plans)				
		Erosion and Sediment Control				
31	NS	Construction Entrance	2	EA		
32	303	Temporary Silt Fence	5507	LF		
33	303	Inlet Protection, to inlcude rip rap	10	EA		
34	303	Outlet Protection, to inlcude rip rap	10	EA		
35	303	Erosion Control Maintenance	1	LS		
		Storm Sewer Pipe and Structures				
36	302	15" Conc, Class III Pipe	199	LF		
37	302	18" Conc, Class III Pipe	45	LF		
38	302	24" Conc, Class III Pipe	48	LF		
39	302	36" Conc, Class III Pipe	24	LF		
40	302	Conc Endwall - For 24" and 36" Pipe	2	EA		
		Trail and Pavement Construction				
41	307	Compact Ex. Subgrade	10280	SY		
42	308/309	Aggregate Material No. 10, 2" (Phase 1)	206	CY		
43	308/309	Aggregate Material No. 10, 2" (Phase 3)	265	CY		
	308/309	Aggregate Base Material, (No. 21B)				
44		2" (Phase 3, Path Shoulder)	106	CY		
45		6" (Phase 3, Path)	796	CY		

Phase 3 (continued, with limited portions of Phase I as indicated in the plans) - as issued with addendum 2						
Item No.	**VDOT Sec.**	**Pay Items**	**Quantity**	**Unit**	**Unit Cost**	**TOTAL**
	308/309	Aggregate Base Material, (No. 21B)				
46		2" (Phase 3, Western Trailhead Shoulder)	119	CY		
47		8" (Phase 3, Western Trailhead)	646	CY		
	315	Asphalt Concrete BM-25.0A				
48		4.0" (Western Trailhead)	35	TON		
	315	Asphalt Concrete IM-19.0A				
49		2.5" (Western Trailhead)	431	TON		
	315	Asphalt Concrete SM-9.5A				
50		1.5" (Western Trailhead) to include safety wedge	276	TON		
51	NS	Armortec, Class 45	500	SF		
52	704	Type B Pavement Line Marking, White, 4"	231	LF		
53	704	Type B Pavement Line Marking, White, 24"	18	LF		
54	704	Pavement Message Marking (Arrow), Type B	6	EA		
		Miscellaneous				
	507	Chainlink Fence, Vinyl Coated, 8' High				
55		Install New CL Fence (Phase 3)	750	LF		
56		Relocate Existing CL Fence (Phase 1)	210	LF		
57		Install New CL Fence (Phase 1)	400	LF		
58	512	Temporary Construction Signs	180	SF		
59	512	Temporary Maintentnace of Traffic	1	LS		
60	602	Topsoil Class A (4" Depth)	1236	CY		
61	603	Regular Seed	395	LB		
62	603	Landscape / Plants	1	LS		
63	NS	12" x 18" Signs	5	EA		
64	NS	24" x 24" Signs	2	EA		
65	NS	30" x 30" Signs	2	EA		
66	NS	Kiosk	2	EA		
67	NS	Entry Sign	2	EA		
68	NS	Interpretive Sign	4	EA		

Phase 3 (continued, with limited portions of Phase I as indicated in the plans) - as issued with addendum 2

Item No.	VDOT Sec.	Pay Items	Quantity	Unit	Unit Cost	TOTAL
		Miscellaneous (cont'd)				
69	NS	Mile Post	6	EA		
70	NS	Bench	3	EA		
71	NS	Concrete Pad (for bench)	3	EA		
72	NS	Wood Bollard (Removable)	1	EA		
73	NS	Wood Bollard (Permanent)	2	EA		
74	NS	Geo-Technical Engineer	1	LS		
75	NS	As-Built Survey	1	LS		
				TOTAL - Phase 3		
				TOTAL - Phases 2 and 3		
76	NS	Performance Bond				
				GRAND TOTAL (Phases 2 & 3 with Performance Bond)		

Contractor _____

Address _____

_____

Name / Title _____

Signature _____

Phase 3 - **BID ALTERNATES** - as issued with addendum 2						
Item No.	**VDOT Sec.**	**Pay Items**	**Quantity**	**Unit**	**Unit Cost**	**TOTAL**
ALTERNATE A - Reduce trail width thru tunnel from 10' wide to 8' wide						
3	307	Aggregate Material No. 10, 2"	(263)	CY		( )
4	309	Aggregate Base Material, (No. 21B)	(1065)	CY		( )
3A	307	Aggregate Material No. 10, 2"	210	CY		
4A	309	Aggregate Base Material, (No. 21B)	888	CY		
				TOTAL		
ALTERNATE B - Reduce trail width for Phase 3 from 10' wide to 8' wide						
41	307	Compact Ex. Subgrade	(10280)	SY		( )
43	308/309	Aggregate Material No. 10, 2" (Phase 3)	(265)	CY		( )
	308/309	Aggregate Base Material, (No. 21B)				
45		6" (Phase 3, Path)	(796)	CY		( )
41B	307	Compact Ex. Subgrade	8812	SY		
43B	308/309	Aggregate Material No. 10, 2" (Phase 3)	212	CY		
	308/309	Aggregate Base Material, (No. 21B)				
45B		6" (Phase 3, Path)	670	CY		
				TOTAL	( )	
ALTERNATE C - Change wearing course asphalt from 9.5A to 9.5AL for Trailhead Parking						
	315	Asphalt Concrete for Western Trailhead				
50		1.5" SM 9.5 A	(276)	TON		( )
50C		1.5" S9.5 AL	276	TON		
				TOTAL	( )	
ALTERNATE D - Provide Seal Treatment with No. 9 aggregate per VDOT Special Provision S314CM3-1012 atop the No. 10 Aggregate on all slopes exceeding 10% within Phase 3 Trail (assume 10' trail width)						
77	S314CM3	Asphalt Surface Treatment (Phase 3; 1,285 LF)	1428	SY		
		* Unit of measurement selected to show equivalency				
				TOTAL		
ALTERNATE E - Change VDOT Headwall from Concrete to Rip Rap Endwall (Culvert W1)						
	302	Endwall - For 24" and 36" Pipe				
40		Concrete Endwall	(2)	EA		( )
40E		Rip Rap Endwall per Plan Detail	2	EA		
				TOTAL	( )	

Certification to Bid Alternates:

Contractor _____

Address _____

_____

Name / Title _____

Signature _____